JPRS 72244

16 November 1978

USSR

# TRANSLATIONS ON USSR TRADE AND SERVICES

No. 1130





U. S. JOINT PUBLICATIONS RESEARCH SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattribute parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22151. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

| BIBLIOGRAPHIC DATA SHEET | 1. Report No. JPRS 72244 | 2. | 3. Recipient's Accession No. |
|---|---|---|---|
| 4. Title and Subtitle<br>TRANSLATIONS ON USSR TRADE AND SERVICES, No. 1130 | | | 5. Report Date<br>16 November 1978<br>6. |
| 7. Author(s) | | | 8. Performing Organization Rept. No. |
| 9. Performing Organization Name and Address<br>Joint Publications Research Service<br>1000 North Glebe Road<br>Arlington, Virginia 22201 | | | 10. Project/Task/Work Unit No.<br>11. Contract/Grant No. |
| 12. Sponsoring Organization Name and Address<br>As above | | | 13. Type of Report & Period Covered<br>14. |

15. Supplementary Notes

16. Abstracts

This serial report contains information on international economic relations, communications, consumer goods, domestic trade, transportation, manpower, and industrial sociology.

17. Key Words and Document Analysis. 17a. Descriptors

USSR
International Relations
Commerce
Consumer Goods
Domestic Trade
Economics
Manpower
Telecommunications
Transportation

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group 5C, 5I, 17B

| 18. Availability Statement | 19. Security Class (This Report) | 21. No. of Pages |
|---|---|---|
| Unlimited Availability<br>Sold by NTIS<br>Springfield, Virginia 22151 | UNCLASSIFIED | 117 |
| | 20. Security Class (This Page) UNCLASSIFIED | 22. Price |

JPRS 72244

16 November 1978

# TRANSLATIONS ON USSR TRADE AND SERVICES

No. 1130

## CONTENTS

CONTENTS (Continued) Page

CONTENTS (Continued) Page

INTERNATIONAL ECONOMIC RELATIONS

# COMPLEX ECONOMIC INTEGRATION PROGRAM IMPLEMENTED

Moscow VOPROSY ISTORII KPSS in Russian No 9 1978 pp 60-72

[Article by F. P. Pavlov: "The Party's of the Members of the Socialist Comity in the Vanguard of the Struggle for the Implementation of CEMA's Comprehensive Program"]

[Excerpts] The history of the steady development and strengthening of the world's socialist system is steadily enriched by outstanding facts and examples of the heroic vanguard activity of the party members. As the principal leading and guiding force of social development in the socialist comity, the communist and workers' parties are steadily concerned with the intensification of all-round fraternal cooperation. Such communist party activities have become a powerful factor in the solution of national and international problems, in the building of developed socialism and the gradual conversion to communism, and in the intensification of bilateral and multilateral relations among socialist countries.

V. I. Lenin who foresaw the process of the establishment of a world socialist economy indicated the ways and means for its creation.[1] In our time Lenin's prophetic words on the development of multilateral relations among free nations, the creation of a new type of relations and the shaping of a world economic socialist system are coming entirely true.[2]

Reality has proved that, with every passing year, Lenin's ideas are being embodied ever further in the broadening political relations among fraternal countries and their deepening interaction in the struggle for the reaching of common objectives. Comrade L. I. Brezhnev, CPSU Central Committee general secretary and USSR Supreme Soviet Presidium chairman, emphasized that these relations are a necessary prerequisite for the growth and development of the world socialist system and for their consistent struggle against the forces of aggression and war.[3]

The purpose of the present article is to prove the way communist and workers' parties of the members of the socialist comity, guided by the ideas of Marxism-Leninism and proletarian internationalism, are implementing in practice socialist economic integration which is one of the most topical problems of our time. Socialist economic integration is a process "consciously and systematically controlled by the communist and workers' parties and governments. . . ."[4]

Thanks to the tremendous daily tireless activities of the communist and workers' parties, the economic cooperation among socialist states is assuming an ever deeper and comprehensive nature. Here the communist and workers' parties of the fraternal countries pay particular attention to the development and intensification of economic integration as the most important factor for the progress achieved by their countries and for the further growth of the power of the socialist comity as a whole.

The national efforts of the fraternal countries and their selfless reciprocal aid have led to the fact that a new center of economic power--the world socialist economy--has developed in the world. Presently, the CEMA-member countries account for approximately 33 percent of the world's industrial output (socialism accounted for 4 percent of the world's industrial output in 1917, 15 percent in 1937, and 17.8 percent in 1950).[5]

In July 1917, seven years ago, at its 25th session, CEMA adopted the Comprehensive Program for Socialist Economic Integration. It inaugurated a qualitatively new stage in the intensification of economic and scientific and technical relations among fraternal countries and became the material base for their further rapprochement.[6]

The fraternal communist and workers' parties consider the comprehensive program as the most important tool for:

a. Concentrating the efforts of the socialist countries on the acceleration of the socioeconomic development of the individual countries as well as the entire socialist comity, i.e., the achievement of economic socialist integration;

b. Finding the most efficient ways and means for the solution of political, economic, and scientific and technical problems related to the shaping of the world's socialist economy;

c. Strengthening the unity of the friendship and brotherhood among the socialist countries on the basis of Marxist-Leninist ideology and socialist ownership of productive capital.

Thanks to the efforts of communist parties and the peoples of the socialist countries, the development and consolidation of their comprehensive cooperation is being systematically achieved on the basis of the radical advantages of socialism over capitalism in material production.

The comprehensive program for socialist economic integration is the most important accomplishment of developed socialism. Essentially, this document has become the common general plan for the development of CEMA-member countries over a 20 year period.

The most important element in the system of relations in the framework of the world's socialist comity is the firm implementation of the principle of flexibly combining the national interest of the individual socialist countries with the international interests of the entire socialist comity.

The integration of the economies of the socialist countries represents the reaching of a qualitatively new level of production specialization and cooperation among them and the combination of their national resources for the purpose of resolving common economic, scientific and technical, and ecological problems, and gradually creating a reciprocal convertibility of socialist currencies.

The history of communist activities in CEMA-member countries offers an impressive picture of the development of cooperation among fraternal countries, ranging from simple to ever more complex and higher forms which include production specialization and cooperation and close economic integration. Presently, a widespread, flexible, and effective mechanism of economic and scientific and technical cooperation has developed, consistent with the requirements of socioeconomic development in the epoch of development of the scientific and technical revolution and the increased trend of internationalization of economic life. It is a powerful lever in resolving the problems of socialist and communist construction.

These processes require the planned development of new national and international economic ratios, the establishment of a highly effective economic structure in each of the fraternal countries, and the concentration of funds for the implementation of major projects in the most progressive production sectors.

The advantages of the socialist type of integration are clearly manifested also in the stable and dynamic economic growth of CEMA-member countries compared with the developed capitalist countries.

Using the basic advantages of the new production method, including the international socialist division of labor, the formerly economically backward CEMA-member countries made an unparalleled thrust forward. Thus, for example, between 1951 and 1975 Bulgarian industrial output rose by a factor of 18, while that of Romania, 21; meanwhile, the CEMA average rose approximately 10-fold.[7]

The implementation of major joint projects aims at improving the availability of energy and many types of raw materials in the socialist countries was initiated within the program in the course of the previous five-yea plan. The Ust-Ilim Cellulose and Kiyembay Asbestos combines are being built, the Orenburg Gas Condensate Deposit is being developed, the main gas pipeline is being laid to the western border of the USSR, nickel production in Cuba is being increased, and major national economic projects are being created in other socialist countries through the joint efforts of CEMA members.

In accordance with the comprehensive program extensive work is being done in the field of international specialization and cooperation in the production of machines, equipment, and instruments, particularly in the bearings industry, the production of computer equipment, transportation machine building, machine tool building, and the nuclear power industry.

The economic relations among socialist countries include not only trade but industrial production, capital construction, transportation, and communications. In the course of the implementation of the comprehensive program, last five-year plan the average annual growth rates of industrial output of the CEMA-member countries averaged 7.4 percent, compared with 1.2 percent in the EEC and the United States. With the help of Soviet industry the CEMA-member countries are rebuilding enterprises, fully or partially equipped with Soviet equipment, with a view to raising them to a high technical standard and increasing the scale and pace of industrialization of CEMA-member countries. In accordance with the agreements, with every passing year increasing deliveries of petroleum, natural gas, coal, iron ore, manganese, chromium, cast iron, asbestos, timber, and other valuable raw materials are crossing the borders and ports of the USSR, meeting from 50 to 100 percent of the import requirements of the socialist countries for such goods. In the 10th Five-Year Plan the export of energy carriers from the USSR to CEMA-member countries will increase substantially yet once again: Between 1976 and 1980 the USSR will deliver 364 million tons of petroleum, about 90 billion cubic meters of gas, and 67 billion kilowatt hours of electric power. This will represent nearly one-half more than the total deliveries in the previous five-year period.[8]

Heavy industry output plays a major role in USSR exports to the members of the socialist comity. As in the past, the Soviet Union remains one of the main suppliers to the fraternal countries of a great variety of machinery, equipment, and transport facilities. Whereas in 1960 the USSR accounted for 16.5 percent of the trade in such commodities among CEMA-member countries, it accounted for 23.3 percent in 1976. The rising share of the USSR in trade in such commodities has been retained this five-year plan as well. Last five-year plan alone the USSR exported to the European socialist countries machines and equipment worth 10.6 billion rubles. This included about 46,000 metal-cutting machine tools, over 908,000 passenger cars, over 112 million antifriction bearings, and many other goods produced by the machine-building industry.[9]

The overall volume of trade between the USSR and the other CEMA-member countries has been rising steadily with every passing year. "Our trade with the fraternal socialist countries," said Comrade A. N. Kosygin, USSR Council of Ministers chairman, addressing the 25th CPSU Congress, "is of a particular nature. It reflects the stable economic relations which appeared in the course of the building of socialism and mutual cooperation. Such relations, whose solidity is guaranteed by the political unity and friendship within the socialist comity, are sources of raw and other materials, equipment, scientific and technical experience needed for the fast and confident growth of the national economies of all fraternal countries."[10]

The nature of trade between the USSR and the other CEMA countries is largely determined by the economic structure and the availability of natural power and raw material resources and the various conditions of their development in the individual countries. Fulfilling its international duty to the fraternal parties, the Soviet Union has developed capital-intensive raw material sectors in accordance with the needs of the socialist countries.

In turn, between 1971 and 1975 alone the USSR imported from the European CEMA-member countries machines and equipment worth 19.8 billion rubles, or over 45 percent of total imports from these countries. A considerable percentage of the needs of the Soviet national economy for equipment for the chemical, petrochemical, metallurgical, food, and meat and dairy industries, railroad transportation, and ships for its cargo, river, and fishing fleets is covered through imports from the socialist countries of machines, equipment, and transport facilities. The Soviet Union is a major importer of industrial consumer goods exported by other CEMA-member countries. Between 1971 and 1975 these countries exported to the USSR consumer goods and raw materials for their manufacturing worth over 15 billion rubles or about 34 percent of all Soviet imports from CEMA-member countries (including leather shoes, clothing and knitwear, furniture, and other commodities).[11]

Therefore, economic cooperation among the socialist countires is an effective help to resolving the problems of the scientific and technical revolution, facilitating for each country the solution of problems related to economic management and upgrading public production effectiveness.

The Marxist-Leninist parties act as the collective manager of the process of rapprochement among the fraternal countries, expressing the profound unity of the basic interests of the working class and all working people. The leading role of the communist and workers' parties in the development and improvement of cooperation among socialist countries is manifested in a number of aspects.

First, on the basis of the scientific Marxist-Leninist principles, the fraternal parties could predict and program the future of their countries and of the entire socialist comity, express the common international interests of the working people, and combine them with the possibilities and needs of the individual states.

Secondly, the fruitful cooperation among fraternal parties and countries strengthens the prestige of the socialist comity in the international arena and exerts an ever stronger impact on the democratization of international relations.

Thirdly, the qualitatively new principles of economic cooperation applied in CEMA activities have earned broad recognition: Equality, independence, voluntary participation, reciprocal advantages, mutual aid, and respect for national sovereignty.

Fourthly, the groundlessness of the fabrications of bourgeois politicians and economists who have attempted to prove that a number of principles governing economic activities of socialist countries (state foreign trade monopoly, centralized planning, and so on) allegedly prevent the development of economic cooperation between them and third countries has been proved.

All CEMA-member countries are showing a stable dynamics in the development of material production sectors. In 1977 national incomes rose 6.3 percent in Bulgaria, 8 percent in Hungary, 5.2 percent in the GDR, 7.1 percent in Mongolia, 5.6 percent in Poland, 8.6 percent in Romania, 4.5 percent in the USSR, and 4.5 percent in Czechoslovakia. Cuba's gross social product rose over four percent. The increased scales of output, the growth of production forces and the improved labor conditions were backed by the expansion and modernization of the production apparatus. Considerable funds were invested by all CEMA-member countries to achieve these purposes.

As a result of this, in 1977 Bulgaria installed capital assets worth 5.5 billion leva, three-quarters of which in material production. This included capacities for the production of electric power, coal extraction, and the manufacturing of soda, polyester fibers, cement, and other commodities. Hungary completed the construction and commissioning of a number of big industrial projects. The capacities of the (Almashfyuzite) Alumina Plant rose by 40,000 tons; the (Niradeak) Bauxite Mine increased its output by 350,000 tons; the production of synthetic fibers rose by 6,000 tons and the capacity of the (Tissay) Thermoelectric Power Plant rose by 430 megawatts. In the GDR a 500 megawatt power turbine was installed at the Hagenwerder-III Electric Power Plant; soft coal mines were developed in Schlabendorf-Zud and (Vituitc). The capacities of a number of machine building, chemical, instrument making, glassware, cellulose-paper, furniture, and other industrial enterprises was increased considerably. Over 90 industrial projects were built in Cuba.[12]

In Mongolia the Darkhan House-Building Combine was commissioned and two brick manufacturing plants and other enterprises were expanded and reconstructed. In Poland four power turbines 200 megawatts each, a 2.2 million ton capacity blast furnace, an electric steel smelting shop, two knitted goods enterprises, a clothing factory, three dairy plants, and a cement plant were completed. In Romania some of the most important commissioned projects included hydroelectric power plants on the Olt and Somes rivers, a coke chemical plant, cold and hot steel banned rolling mills, and a blast furnace with a 1.8 million ton cast iron capacity, and facilities for the production of trucks, tractors, and mining and heavy equipment.

In the Soviet Union 250 big state industrial enterprises were equipped and commissioned. This made it possible considerably to upgrade Soviet production capacities and is contributing to the production of goods needed by all CEMA-member countries.[13]

The members of the comity extensively celebrated the 60th anniversary of the Great October Revolution. Preparations for the noteworthy anniversary triggered the labor enthusiasm of millions of builders of the new world and marked the birth of new forms of socialist competition. Workers collectives of the Red Csepel (Hungary) and progressive enterprises in other fraternal countries launched the initiative to welcome the outstanding anniversary with labor successes and fulfill ahead of schedule their export pledges. This international movement taken up by millions of people became a powerful factor in fulfilling the assignments of the second year of the five-year plan.

The headlong upsurge of the national economy and the improved living standards of the citizens vividly proved the advantages of existing socialism against the background of the permanent difficulties experienced by the capitalist countries.

Thanks to the guiding and organizing force of the communist and workers' parties, the socialist world is progressing confidently. The interaction among fraternal countries continued to intensify in all fields of life. As in the past, last year important problems related to improving reciprocal relations were considered in the course of trips by party-government delegations, and meetings of general and first secretaries of central committees and other party and government leaders.

The communist parties and fraternal countries are in the vanguard of the forces favoring peace, international cooperation, and freedom and independence of the peoples. They are models of joint and effective solution of complex economic problems based on true equality and comradely mutual aid.

CEMA's international prestige is rising with every passing year. A variety of countries are becoming interested in its work and in cooperating with it. In 1976 and 1977, for the first time, delegations from Angola and Laos attended CEMA sessions as observers. Work has been done on reaching cooperation agreements between CEMA, on the one hand, and Finland, Iraq, and Mexico, on the other. Presently the council is maintaining relations with over 60 international economic and scientific and technical organizations. It has called for the conclusion of an agreement on a basis for relations between CEMA and the EEC (Common Market).

Characteristically, Western business circles and political leaders have repeatedly noted that agreements on economic, scientific and technical, and industrial cooperation between socialist and capitalist countries in Europe benefit all nations. This is natural. Daily practical experience has confirmed that trade relations between CEMA and Common Market countries are mutually profitable, and that they contribute to the energizing of the economy and to upgrading business activities. The Western European press has justifiably emphasized that the socialist countries are reliable partners of the West, punctiliously fulfilling their obligations.

Favoring the broadening of business relations with the socialist countries, some Western press organs and political leaders are openly complaining about the barriers still blocking this way. This applies, above all, to some Common Market rules, a discrimination against the socialist countries remaining from the cold war, and the absence of necessary relations between the EEC and CEMA. It is a question of reciprocally granting most favored partner status, developing business cooperation on an equal and non-discriminatory basis, and removing bans and restrictions on exports and imports. Unfortunately, the Common Market leaders are evading the solution of such problems.

Together, CEMA and the Common Market account for over one-half of the world's industrial output and exports. Hence the great importance of establishing fruitful contacts between them with a view to the fullest possible implementation of the stipulations and agreements of the European Conference. Let us equally remember the fact that the all-encompassing economic crisis in the capitalist countries, growth of unemployment, increased inflation, and continuous increase in the prices of objects of prime necessity prove that the Western economy is declining.

To the members of the socialist comity 1977 was characterized by the further strengthening of their economic and scientific and technical potential, improved prosperity of the working people, intensification and improvement of all-round cooperation, and development of socialist economic integration in accordance with the comprehensive program. "We," Comrade L. I. Brezhnev said, "could say with a clear conscience that our alliance, our friendship, and our cooperation are an alliance, friendship, and cooperation among sovereign and equal countries, joined by common objectives and interests and ties of comradely solidarity and mutual aid. We are marching together, helping each other, and joining efforts, knowledge, and resources for the sake of achieving fastest possible progress."[14]

Following the adoption of the comprehensive program for the development of the socialist countries, the results of the economic integration showed that CEMA is the most dynamic economic force in the contemporary world. One of the greatest events in its activities last year was its 31st session held in Warsaw (in June 1977). The reports and addresses by the heads of delegations of CEMA-member countries emphasized the permanent importance of the Great October Revolution--the principal event of the 20th Century which laid the beginning of a new epoch in the history of mankind, the epoch of transition from capitalism to socialism.

The delegates to the session rated highly the experience acquired by the fraternal countries in the course of the creative application, under their specific conditions, of the overall laws governing the building of a socialist society and the development among them of international relations of a new type, based on the principles of Marxism-Leninism and socialist internationalism. Thanks to the efforts of the communist parties and the peoples of the socialist states, and to the development and strengthening of their all-round cooperation, the radical advantages of socialism over capitalism are being systematically utilized.

Reality has confirmed most clearly that solidarity, fraternity, and reciprocal support are powerful factors in the steady development of the members of the socialist comity along the path of progress and prosperity. In our time one of the main characteristics governing relations among fraternal countries is the developed process of their rapprochement. The peoples of the CEMA-member countries are realizing on the basis of specific facts that socialist economic integration is confidently becoming one of the important factors determining the economic development of CEMA-member countries.

The 32 CEMA Session (June 1978), held in Bucharest, took place precisely when its members had reached the midway point in the implementation of their current five-year plans. What are the results of the first half of the five-year plans? They are such as to please the nations of the socialist countries. National income in the socialist comity rose 12 percent while industrial output, 12.4 percent. Approximately four-fifths of the growth of industrial output were the result of higher labor productivity. Real per capita income rose over eight percent.

Let us note that important quality changes have occurred in the past two and a half years in the cooperation among fraternal countries. This is indicated by the expansion of their reciprocal trade. Thus, in 1977 alone the trade among CEMA-members reached 91 billion rubles. This proves the intensification and expansion of national economic relations among CEMA-member countries on the basis of the development of material production specialization and cooperation.[15]

Thus, the members of the socialist comity are demonstrating the confident growth of their economy against the background of the crisis phenomena and aggravating contradictions in the capitalist world. A number of important sectors in the developed capitalist countries, ferrous metallurgy, shipbuilding, and the textile industry in particular, are in a difficult position. The sober bourgeois economists dealing in concrete facts do not see "light at the end of the tunnel." Compared with the 1973 pre-crisis level, in 1977 the volume of industrial output in the developed capitalist countries had increased by only 7 percent, compared with 32 percent in the CEMA-member countries.[16]

The participants at the Bucharest session approved long-term target programs for cooperation in the fields of power industry, fuel, raw materials, agriculture and food industry, and machine building for the period through 1990. This was the session's main item. The planned programs are a new step in the development and intensification of cooperation among CEMA-member countries. These documents define the long-range development of cooperation among fraternal countries in the solution of main problems of economic development. They concretize and develop the comprehensive program for socialist economic integration, raise cooperation among fraternal countries to a higher level, and strengthen its planned pace. As was noted at the session, it is the first time in CEMA practice that the programs formulate

economic and social problems of such major significance. The delegates to the session emphasized that the implementation of the Interkosmos Program convincingly proves the effectiveness of scientific and technical cooperation among socialist countries and is a manifestation of the all-round aid provided by the USSR to the development of science and technology in the fraternal countries. This was brilliantly confirmed by the participation of a Czechoslovak and, subsequently, Polish and GDR cosmonauts in joint flights.[17]

The decisions passed at the Bucharest session formulate a number of urgent practical problems. In this connection, the final communique at the session and the declaration initialed by the delegation heads defined the basic directions to be followed in joint activities and expressed the readiness to mobilize the necessary national resources for the implementation of the projects.

Having considered the report on the participation of the delegation of the Soviet Union to the 32nd CEMA Session, the CPSU Central Committe Politburo and USSR Council of Ministers instructed the competent Soviet authorities to formulate and implement measures aimed at the full and timely implementation of Soviet obligations stemming from the Bucharest decisions.[18]

The unanimous acceptance of the Socialist Republic of Vietnam as a CEMA member was an important event of international significance. This confirms the continuing unification among the countries of world socialism under the banner of Marxism-Leninism and proletarian internationalism.

CEMA is not a closed organization. This was most clearly manifested at its Bucharest session. In addition to the permanent CEMA members and the Yugoslav delegation which is participating in the sessions in accordance with an agreement concluded between the council and the Yugoslav government, delegations from Angola, the Korean People's Democratic Republic, Laos, and Ethiopia participated as observers. The participants displayed their understanding of the interest shown by the Laotian People's Democratic Republic, the People's Republic of Angola, and Socialist Ethiopia to broaden cooperation on a bilateral and multilateral basis with CEMA-member countries. Asserting the principled course followed by CEMA in the field of international economic relations, the resolve to broaden equality and mutually profitable cooperation with developing countries was emphasized at the session.

The documents of the 32nd CEMA Session embody the political principles of the fraternal parties imbued with concern for strengthening the common positions of the comity members in the world arena. Implementing a coordinated foreign policy, and systematically promoting peace and security on the planet, they are having an ever greater influence on the course of international affairs. The Bucharest session confirmed, yet once again, the readiness of the CEMA-member countries actively to participate in the international division of labor based on the inflexible course of their peace-loving policy in the spirit of the principles and obligations codified in the Final Act of the European Security and Cooperation Conference.

CEMA's activities are a unique experience in equal cooperation among fraternal countries, harmonious combination of their national with international interests, and practical implementation of the principles of socialist internationalism and mutually profitable cooperation. They contribute to strengthening the economic and defense power of the socialist comity. CEMA's example of international economic relations is affecting ever more profoundly world economic relations, decisively contributing to the elimination of discrimination and inequality created by imperialist and neocolonialist policies. The socialist comity is showing the way to the solution of the problems affecting mankind.

That is why the communists and all working people in the socialist countries and the entire progressive public in the world are fully confident that next year's CEMA anniversary, the preparations for which have already begun, will be marked by further successes achieved by the fraternal peoples in building a new society and strengthening the power of the socialist world.

FOOTNOTES

1. See V. I. Lenin, "Poln. Sobr. Soch." [Complete Collected Works], Vol 30, p 123.

2. Ibid, Vol 41, p 164.

3. See L. I. Brezhnev, "Leninskim Kursom. Rechi i Stat'i," Vol 5, Moscow, 1976, p 317.

4. "Kompleksnaya Programma SEV" [CEMA's Comprehensive Program], Moscow, 1978, p 7.

5. See V. I. Zolotarev, "Programma Ekonomicheskogo Sotrudnichestva Sotsialisticheskikh Stran" [Program for Economic Cooperation Among Socialist Countries], Moscow, 1973, pp 10-11.

6. Ibid.

7. "Sotsialisticheskaya Ekonomicheskaya Integratsiya" [Socialist Economic Integration], Moscow, 1978, p 16.

8. See VNESHNYAYA TORGOVLYA, No 10, 1977, p 11.

9. See "60-ya Godovshchina Velikoy Oktyabr'skoy Sotsialisticheskoy Revolyutsii i Uspekhi Stran-Chlenov SEV v Postroyenii Sotsializma i Kommunizma, v Razvitii Vzaimnogo Ekonomicheskogo i Nauchno-Tekhnicheskogo Sotrudnichestva" [The 60th Anniversary of the Great October Socialist Revolution and the Successes of CEMA-Member Countries in Building Socialism and Communism and Developing Mutual Economic and Scientific and Technical Cooperation], Moscow, 1977, p 177.

10. "Materialy XXV S"yezda KPSS" [Materials of the 25th CPSU Congress], p 135.

11. See "60-ya Godovshchina Velikoy Oktyabr'skoy Sotsialisticheskoy Revolyutsii i Uspekhi Stran-Chlenov SEV v Postroyenii Sotsializma i Kommunizma, v Razvitii Vzaimnogo Ekonomicheskogo i Nauchno-Tekhnicheskogo Sotrudnichestva," pp 177-178.

12. VOPROSY EKONOMIKI, No 5, 1978, p 101.

13. Ibid, p 102.

14. L. I. Brezhnev, "Veliki Oktyabr' i Progress Chelovechestva" [The Great October and the Progress of Mankind], Moscow, 1977, pp 19-20.

15. See PRAVDA, 17 July, 1978; IZVESTIYA, 14 July 1978.

16. See PRAVDA, 30 June 1978.

17. Ibid; PRAVDA, 27 August 1978.

18. See PRAVDA, 8 July 1978.



5003
CSO: 1823

## SOVIET-FRENCH ECONOMIC COOPERATION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Oct 78 p 3

[Article by G. Dad'yants: "Along the Previous Course"]

[Text] The 13th Session of the Permanent Soviet-French Mixed Commission for Scientific and Technical and Economic Cooperation concluded its work in Paris. As noted by the French press, the purpose of the "great commission," was to sum up the results of the cooperation between the two countries and provide an impetus to economic, scientific, and technical exchanges.

R. Barre, the French prime-minister, justifiably emphasized that Soviet-French cooperation, beneficial to both countries, exceeds the framework of bilateral agreements and is a factor of balance and stability in Europe and the rest of the world. It was no accident that the basic norms of contemporary international relations, codified in the Final Act of the Helsinki Conference on Security and Cooperation in Europe, were initially formulated in the Soviet-French documents--above all the "Principles of Cooperation Between the USSR and France," initialed during the historical visit paid by L. I. Brezhnev to Paris in October 1971.

The broad objectives of economic and trade cooperation between the two countries were codified in June 1977 at the Rambouillet Meeting between L. I. Brezhnev and V. Giscard d'Estaing. The accords covering economic cooperation between 1975 and 1979 and the program for intensified Soviet-French cooperation in economics and industry covering a 10-year period are being successfully implemented. Trade is growing at an average of 30 percent per year. The target of public trade compared with the previous five-year period was in fact achieved from 1975 to 1 October 1978. Measures are being taken to achieve the second objective--to triple trade.

On the eve of the "great commission's" work some French bourgeois newspapers clamored that trade between the USSR and France would, allegedly, "be unable to withstand the pace" stipulated in Rambouillet, while the number of contacts established with Soviet organizations would decline. No mention was

made of the fact that, of late, the Soviet-French trade balance has been negative in terms of the USSR and that its structure is advantageous, above all, to the French companies purchasing from the USSR essentially raw materials while selling equipment or consumer goods.

It is not some kind of special "demandingness" or "intransigence" on the part of the Russians that represents a serious hindrance to the development of trade and economic cooperation between the two countries (something frankly admitted even in Paris), but the fact that French foreign trade is generally oriented toward the West.

Everyone realizes that trade between Paris and Moscow could be increased and improved above all through greater French purchases of Soviet equipment, as is already the case with Britain and the FRG, and the broadening of compensation deals and industrial cooperation between the two countries.

The political will of the Soviet and French governments to take new steps to develop cooperation in accordance with the objectives stipulated at the Rambouillet Summit between L. I. Brezhnev, CPSU Central Committee general secretary and USSR Supreme Soviet Presidium chairman, and V. Giscard d'Estaing, French president, was confirmed at the 13th "great commission" session. As R. Monory, French minister of economy and head of the French government delegation, stated, the session proved the great coincidence of views concerning the prospects of Franco-Soviet cooperation. The minister expressed the confidence that the assigned task of tripling trade between the two countries by 1980 will be carried out. Cooperation between France and the Soviet Union, R. Monory emphasized, is necessary for the sake of preserving the peace and strengthening detente. The continuation of such a policy is of decisive importance to the future.

The new prospects for the development of trade and economic relations earmarked at the 13th session, and the protocol concluded during the session on cooperation in the peaceful utilization of atomic energy in 1978-1979 proved that the USSR and France are following the established course of expansion and intensification of relations. In France this course enjoys the total support of the democratic public which considers that a more decisive policy of cooperation with the USSR could make the French economy less vulnerable to American and West German pressure and to the financial storms which disturb Western, including French, trade.

5003
CSO: 1823

## SYMPOSIUM ON ECONOMIC FORECASTING HELD

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian Vol 14 No 5, Sep-Oct 78 pp 1015-1016

[Report by D. S. L'vov and Ye. G. Yasin: "Problems of Technical-Economic and Socioeconomic Forecasting; Yugoslav-Soviet Symposium"]

[Text] The fourth Yugoslav-Soviet symposium on problems of technical and socioeconomic forecasting was held in Kragujevac (Yugoslavia) on 11-15 December 1977. Since 1974 such symposiums have been held annually as a form of scientific cooperation between the USSR Academy of Sciences and the Yugoslav Academy of Sciences and Arts. They are alternatingly organized by the TsEMI [Central Economic-Mathematical Institute] and the Mihajlo Pupin Automation and Telemechanics Institute in Belgrade.

The Soviet delegation to the symposium included TsEMI associates and members of its Estonian branch; the Yugoslav participants included members of the Mihajlo Pupin Institute, the university in Kragujevac, the scientific and technical services of the Tsrvena Zastava Motor Vehicles Plant, and a number of other organizations.

The symposium was opened by V. Mateic, head of the Yugoslav delegation (Mihajlo Pupin). He emphasized in his address the importance of strengthening and developing contacts between Soviet and Yugoslav scientists-specialists on economic management problems. V. Mateic noted the role and place of forecasting in economic project management. In his view, the term "forecast" should mean only the passive forecasting of processes not influenced by decisions. V. Mateic classified active forecasting in the field of planning.

D. S. L'vov's (TsEMI) report dealt with the methodology and practice of forecasting scientific and technical progress and the effectiveness of new equipment and capital investments. The speaker emphasized the need for a uniform assessment of effectiveness based on the reduced outlays method in assessing not only the effectiveness of investment projects but the activities of self-financing enterprises as well. He described the fundamentals of the method used in the USSR for assessing the effectiveness of capital investments and of new equipment, creating great interest among the Yugoslav members of the symposium.

Ye. G. Yasin (TsEMI) considered problems of normative forecasting of development of information systems based on the "target tree." The following feature characterizes his method: Structuring the target tree revealed the existence, at its lower levels, of subtargets which, without being alternatives for achieving the objectives set higher, are also related to a number of them. The speaker described them as T targets and suggested a method for assessing their overall importance, illustrating its application by using as an example the normative forecast of the development of information systems. The forecast showed that the problem of communications between users and computers will be of the greatest importance to the future development of information systems.

The methods of legal and investigative forecasting in assessing the future development of information-research systems and base data systems were discussed by M. Bozhin (Kragujevac University) in a report treating a similar topic.

The time factor as an indicator of the effectiveness of transportation systems was analyzed in detail by A. Kh. Valma (TsEMI Estonian branch). It was based on a summation of the rich data on passenger rail and air transportation, with a view to assessing time savings offered by aviation in relation to distances, transportation costs, and other factors.

V. P. Rusakov (TsEMI) and N. Ya. Petrakov submitted a joint paper on forecasting the dynamics of retail prices based on the combined assessment of physical and monetary flows in the national economy. Prices are considered in connection with population income and commodity stocks meeting demand. The characteristic feature of the authors' approach was that demand functions are built on the basis of huristic premises of the behavior of the consumer, using population budget statistical data. The first assumption is that lowering the price of a commodity raises the consumer's budget and vice versa. Changes in real income also change structure of outlays. Consumers with different income levels react differently to price fluctuations. Should the expenditure part of the budget consist of specific commodities this premise matches the effect of the income. Should the budget include groups of commodities substitution effects must be taken into consideration as well. To this purpose the coefficient of information concerning the consumption structure is introduced in the average length forecast. In the case of price changes, this consists of the trend of the consumer to amend his consumption of a given commodity in physical terms the less the more the commodity is necessary. This forms the second postulate. The demand function and system of equations on which prices are defined, and supply and demand balanced, are based on both postulates.

N. G. Gorbatenko (TsEMI) discussed the elaboration of adequate information support of optimal planning processes and formulated requirements governing information systems from the viewpoint of the application of optimizing models. He analyzed the merits and shortcomings of various types of information systems.

Most of the papers submitted by the Yugoslav participants dealt with methods used for and implementation of sectorial forecasts. S. Radoman (Mihajlo Pupin) described methodical problems in forecasting the development of sectors producing electrical engineering and electronic equipment. The formulation of forecasts here is based on the use of classical mathematical-statistic methods of the study of time series of production and consumption indicators in the various sectors, determining trends, and cyclical and random components with preliminary and final expert evaluation of expected forecast values, using the Delphic Method. The forecast takes into consideration the export-import balance and the influence of scientific and technical progress. A forecast was formulated for the development of the electrical engineering industry by 1980, based on the combined production and consumption possibilities for electrical engineering and electronic goods in the various parts of the country.

J. Deklev and N. Rozhin (Kragujevac University) summed up the results of a comprehensive study of various forecasting methods used to resolve practical problems of long-term planning the production of petroleum goods. The speakers suggested algorithms and programs for forecasting requirements for gasoline for motor vehicle transportation, based on the modern apparatus of the study of Markov Chains. The computations took into consideration seasonal fluctuations in gasoline consumption ("peaks" in the period of summer leaves), the fluctuation of petroleum product prices on West European and American markets, and other factors. As the speakers proved, the use of such methods gives forecast assessments a rather high level of accuracy.

The use of chart-analytical methods in computing and planning 24-hour power system loads was discussed in the paper by R. Rakic and M. Rakic (Mihajlo Pupin). They analyzed the factors determining the load and breakdown of power production between Yugoslav thermal and hydroelectric power plants. They paid particular attention to the study of "standard" loads and possibilities to consider them in long-term plans of the development of power industry systems. They suggested a diagram for forecasting the 24-hour demand for electric energy systems. In addition to technological factors the computations took into consideration economic indicators such as maintenance cost, exports, imports, and others which affect the income level of the power industry enterprise.

In addition to the official symposium program, visits to a number of enterprises and discussions with Yugoslav colleagues of problems of improving the system of planning and management of the socialist economy were of great interest to the Soviet participants.



5003
CSO: 1823

## CEMA MEETING ON STATISTICS

Moscow VESTNIK STATISTIKI in Russian No 9, 1978 pp 87-89

/Article by A. L.: "The 31st Meeting of the CEMA Permanent Commission on Statistics"/

/Text/ The 31st Meeting of the CEMA Permanent Commission on Statistics, the work of which was concluded with the drafting and signing of a protocol, took place in the German Democratic Republic (the city of Dresden) from 23 through 26 May 1978 in an atmosphere of friendship and mutual understanding.

Representatives of the countries on the CEMA Permanent Commission on Statistics took part in the meeting. In conformity with the Agreement Between CEMA and the Government of Yugoslavia a delegation of Yugoslavia took part in the work of the commission, also present as observers were representatives of the Main Statistical Administration of the Socialist Republic of Vietnam and representatives of the Secretariat of the EEC and the ILO.

At the beginning of its work the commission discussed the report of the commission chairman, "On the Tasks of the CEMA Permanent Commission on Statistics, Which Ensue From Decisions 83, 84 and 85 of the Meetings of the CEMA Executive Committee." In this report the main attention was devoted to the work of the commission, which is connected with the organization of statistical monitoring of the course of the fulfillment of the measures of the Coordinated Plan of Multilateral Integrational Measures of the CEMA Member Countries for 1976-1980. The work performed by the interested delegations of the countries on the commission in the area of the provision of statistical data, which characterize the fulfillment in 1977 of the integrational measures included in the Coordinated Plan for 1976-1980, was rated favorably. It was noted that it is necessary to consider a good result of this experience: the large amount of work performed in the CEMA member countries by the central statistical organs on the organization on the national level of the appropriate statistical survey; the successful coordination by the interested countries within the commission of a special program of the submission to CEMA organs of statistical reporting data on the fulfillment of the measures of the Coordinated Plan; the submission of these data by the delegations of the countries on the commission to the CEMA

organs in short periods; the practical processing by the CEMA Secretariat of the data of the countries and the timely delivery of the information to the CEMA Committee for Cooperation in the Area of Planning Activity and the CEMA Committee on Scientific and Technical Cooperation.

The accounting data for 1977, which were processed by the CEMA Permanent Commission on Statistics, were widely used by the CEMA Committee on Cooperation in the Area of Planning Activity in the preparation of the report, "The Course of the Fulfillment and the Practical Results of the Implementation of the Most Important Measures Included in the Coordinated Plan of Multilateral Integrational Measures of the CEMA Member Countries for 1976-1980."

In the report attention is especially devoted to the fact that in the decree of the CEMA Committee on Cooperation in the Area of Planning Activity in accordance with the indicated report there is a request to the CEMA Permanent Commission on Statistics to prepare and send in 1980 to the committee proposals on a unified system of the submission of the statistical data which are necessary for the implementation of the survey in CEMA organs of the course of fulfillment of the measures included in the Coordinated Plan for 1981-1985.

The experience of processing the reporting data for 1977 on the Coordinated Plan for 1976-1980 revealed the need for the further improvement of the program of the gathering of these data, particularly the more detailed elaboration of a number of methodological questions for the purpose of ensuring the comparability of the plan and reporting indicators and the coordination of their content.

An important task of the commission in the future is the extension of the monitoring of the course of fulfillment of the Coordinated Plan to the diverse measures which are presently being elaborated within the framework of the long-term goal programs of cooperation (DTsPS's) of the CEMA member countries. This problem basically should be solved in practice during the preparation of proposals on a uniform system of the submission of statistical data for the monitoring in CEMA organs of the course of fulfillment of the measures which will be included in the Coordinated Plan for 1981-1985. This formulation of the question is governed by the fact that the most important measures of the DTsPS's, as is proposed, subsequently should be included in the Coordinated Plan for the next five-year period.

The commission examined and approved "The System of Statistical Indicators of Nonmaterial Services and the Methodology of Their Calculation." The plan of the system of indicators was discussed in detail at a conference of specialist-statisticians of the CEMA member countries. This system, at the basis of which are the principles of the Marxist-Leninist theory of expanded reproduction, is integrally connected with the balance of the national economy, develops and supplements it.

The general methodological principles of the statistics of the sphere of services are formulated in the document, which is of great importance in the solution of questions of the further convergence and unification of the methods of elaborating the indicators of nonmaterial services in the CEMA member countries for the achievement of a higher degree of international comparability of these indicators.

The drafting of the indicated document and the further work in this area are of great importance for the comprehensive study of the processes and phenomena occurring in the sphere of services, the formulation on its basis of measures aimed at the further development of the sphere of services, at the increase of the efficiency of the use of the resources in it, at the improvement of the service of the population in the CEMA member countries.

The commission considered it expedient to continue the work in the area of the statistics of the sphere of services and, in particular, to intensify various aspects of this theme, such as the valuation of nonmaterial services in comparable prices, the methodology of calculating the indicators of the revenues and expenditures of organizations and institutions of the nonproductive sphere, the indicators of the import and export abroad of nonmaterial services and so on.

During the further work on this theme it is intended to carry out the elaboration of methological principles on the system of indicators of nonmaterial services on the basis of the methodological principles of the balance of the national economy, particularly in combination with the principles of the calculation of the indicators of the overall consumption by the population of nonmaterial services, the income and expenditures of the population and other indicators of related sections of statistics.

The commission examined and approved proposals on the directions of the further improvement of the methodology of the statistical balance of production, consumption and accumulation of the social product (the physical balance). In the document, "On the Directions of the Further Improvement of the Physical Balance," which was prepared by the USSR delegation and the CEMA Secretariat, there are indicated the areas and questions, which merit attention from the point of view of the possible improvement of the methodology, and an organization plan for the performance of this work in 1979-1981 is also presented.

The further improvement of the practice of elaborating individual indicators of the consolidated physical balance will make it possible to study in more detail and to reveal more completely the main economic proportions, the objective laws and trends of expanded socialist reproduction of the CEMA member countries, to improve the international comparisons of the data on the national income and the components of its use. Moreover, the materials of this elaboration can be used for the improvement of the methodology of comparing the most important value indicators of the development of the national economy of the CEMA member countries, as well as the sections of the balance of the national economy.

In connection with the mechanization and automation of data processing, with the development of information and automated control systems and their integration the objective need has arisen for the standardization of the content of primary documents. Unified Fundamental Principles and a Dictionary of Terms and Concepts on Questions of the Standardization of Primary Accounting Documents Suitable for Data Processing Using Means of Computer Technology have been drawn up on the basis of the performed exchange of know-how between the CEMA member countries, the delegations of the USSR and the GDR. After hearing and discussing the reports of the delegations of the GDR and USSR on this question, the commission made a note that the delegations of the countries on the CEMA Permanent Commission on Statistics had agreed to use these documents as methodological materials in the operations on the standardization and unification of primary accounting documents with allowance for the specific conditions of the countries.

The commission discussed in detail the "Methodological Principles on the Development of the Software of ASGS's /Automated Systems of State Statistics/" and made a note that the delegations of the countries on the CEMA Permanent Commission on Statistics agreed to use this document as methodological material in the development of the systems software of ASGS's with allowance for the specific conditions of the countries. The methodological principles were drafted for the purpose of generalizing the experience of the CEMA member countries in the area of the development of the software of ASGS's and are regarded as a recommendation for the subsequent organization of the sharing of practical developments in this area among the CEMA member countries.

The document includes the general concept and main directions of the development of the systems software of the ASGS's, recommendations on the composition of the packages of applied programs in statistics and on the principles of their use, the methods of adapting the packages of applied programs, the principles of making a catalog of applied programs of the ASGS's.

The participants in the commission meeting listened with great attention and interest to the report of the GDR delegation, "Urgent Problems of the Statistics of the German Democratic Republic." In the report, in particular, there was shown the ever increasing role of the State Central Statistical Administration--an organ of the Council of Ministers of the German Democratic Republic for the management and coordination of accounting and statistics---as a centralized system of the gathering, processing and analysis of statistical information on the development of the national economy.

GDR statisticians have made a great contribution to the work on the improvement of the system of statistical indicators, which reflects the quantitative and qualitative changes taking place in the socio-economic development of the German Democratic Republic. Much work has been done in the area of the development of a system of classifiers and nomenclatures, the improvement and perfection of primary statistical reporting, as well as in the area of the improvement of statistical methodology. By providing timely, reliable

and scientifically sound information on the development of the social, economic and cultural life of the country, the GDR State Central Statistical Administration has created a data bank for all industrial and construction enterprises of the national economy, which is a great reserve in the matter of the sharp reduction of the labor-intensiveness of statistical work.

The delegations of the countries in their addresses noted that the experience gained by GDR statisticians on the improvement of statistical work is of unquestionable interest also for statisticians of the CEMA member countries.

The commission also discussed the questions: "On the Course of the Work on the Comparison of the Most Important Value Indicators of the Development of the National Economy of the CEMA Member Countries and Yugoslavia According to the Data for 1978," "On the National Peculiarities of the Methodology of Price Statistics in the CEMA Member Countries and Proposals on the Further Work in the Area of Price Statistics," "On the Improvement of the Programs of Statistical Publications of the CEMA Secretariat" and others.



7807
CSO: 1823

## BRIEFS

USSR ORDER--A big tanker built by the Yugoslav Rijeka Shipyards is sailing to the Soviet Union. It was named after Klement Gottwald, the outstanding leader of the international communist and workers' movement. The new 40,000 ton tanker will be soon added to the fleet of the Latvian Maritime Shipping Administration. The Rijeka shipbuilders have already delivered three tankers of the same series to the Soviet client. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Oct 78 p 3] 5003

HUNGARIAN MACHINE TOOLS--In recent years Hungarian machine tool builders have gained great international recognition. Their output has been rewarded by prizes and awards in a number of very big worldwide machine-tool exhibits. The volume of output in this sector of the republic's national economy has more than tripled in 15 years. Presently Hungarian enterprises are producing about 150 different types of machine tools. Nearly 85 percent of this output is exported. The Soviet Union is one of the biggest purchasers of Hungarian machine tools. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Oct 78 p 3] 5003

CSO: 1823

COMMUNICATIONS

NEED TO IMPROVE POSTAL SERVICE EDITORIALIZED

Alma-Ata KAZAKHSTANSAKAYA PRAVDA 27 Sep 78 p 3

[Text] In recent years in the republic important measures have been taken to further improve and develop postal communications, to expand its network of enterprises and the services that it renders to the population and the national economy and to speed up the forwarding and delivery of magazines, newspapers and letters.

At the same time postal communications service to the population and the national economy is still far from meeting the demands required of it and is in need of considerable improvement. The material and technical base of postal communications is developing slowly. At the majority of post offices and communications centers mail handling is done by hand. Established time periods for delivering letters, magazines and newspapers are being violated.

Through a decree concerning measures to further improve postal communications service to the population and the national economy, the Central Committee of the Kazakhstan Communist Party and the Kazakhstan Council of Ministers has obliged the Kazakh SSR Ministry of Communications to develop and carry out specific measures to eliminate existing shortcomings, to further develop the production technical base and to radically improve postal communications. The ministry must take additional steps to raise the efficiency and quality of postal work; it must equip postal enterprises with equipment for mechanizing and automating letter sorting and the handling of printed matter and packages; it must speed up the adoption of motorized delivery of periodicals and mail and significantly expand the conveyance of mail in containers. It must do more to make use of available internal reserves to more fully meet the demands of the population and the national economy for postal communications services.

In the near future it must take steps to ensure the delivery of central and republic-level newspapers to populated points on the same day, as a rule, that they are published.

It has been suggested that the executive committees of the oblast, city and rayon councils of peoples' deputies strengthen their control over the

activity of communications enterprises and that they help them improve the work and create the necessary cultural and domestic conditions for postal workers. More work-related living space should be allocated to postal workers and places for their children must be found in pre-school nurseries.

The Kazakh SSR Ministry of Automotive Transport must allocate trucks to the USSR Ministry of Communications in accordance with the plan for conveyances; and along with the communications workers the Ministry of Automotive Transport must significantly expand the conveyance of periodicals and letters with buses covering routes in the suburbs and between cities.

Oblast, city and rayon party organizations must strengthen mass-political work at postal communications enterprises and raise the exactingness required of postal workers in their work; they must give them more specific help by disseminating leading experience and strengthening labor and production discipline and in raising the standard of service to the population and the national economy. They need to develop socialist competition among the collectives of postal communications enterprises for the successful carrying out of established assignments and assumed obligations.

8927
CSO: 1823

## PERIODICAL SUBSCRIPTION CAMPAIGN

Moscow IZVESTIYA in Russian 10 Oct 78 p 2

/Interview with L. D. Barashenkov, chief of the Main Administration for Distribution of Printed Matter, Soyuzpechat', by a TASS correspondent: "Subscription-79: Problems, Questions, Opinions"; date and place not given/

> /Text/ The second month of the subscription campaign is under way. It is proceeding under a business-like atmosphere with the great activeness of the Soviet people. However, during the subscription to newpapers and magazines, as in any matter concerning the interests of millions of people, questions arise, which a TASS correspondent asked L. D. Barashenkov, chief of the Main Administration for Distribution of Printed Matter, Soyuzpechat', to answer.

/Question/ Some readers have asked: why is it still difficult to subscribe to some popular publications?

/Answer/ Indeed, among many publications of periodical newspapers and magazines there are those, the demand for which it is not yet possible to fully meet, although their editions number many millions of copies. Under the conditions of limited resources of paper the increase of their editions is impossible without detriment to other publications. Consequently, other ways of solving the problem are necessary.

One of them, in my opinion, lies in the extensive dissemination of collective forms of subscription. In a number of cities, for example, in Perm', the subscribers order a number of publications jointly at the place of residence or work. While one of them becomes acquainted with some publication, the others read the remaining magazines, exchanging them in turn. This is the customary form of neighbor'y relations. Collective forms of subscription are being used more and more extensively among work colleagues. The teachers of a number of schools, the workers of some enterprises and institutions are already doing this.

Owing to this the opportunity arises to meet the demands of several readers with one copy of a publication. After all, we use books precisely in this way at libraries. Why not extend this method to periodicals as well?

The second aspect of the question, in my opinion, is that many still order clearly a greater number of periodical publications than they can read. This is often done simply "from inertia." For it is clear that a person simply is not able to read "from cover to cover" 10 or more newspapers and magazines given the current volume of information. Therefore it would be more proper and feasible for each person to order the necessary minimum of periodicals, getting acquainted with the other publications at libraries, clubs, red corners and other places of public reading.

/Question/ A number of readers are of the opinion that the shift of some publications, especially television and radio broadcast programs, to dissemination through the retail network of Soyuzpechat' creates certain inconveniences.

/Answer/ The list of publications being disseminated through retail trade in 1979 is increasing by seven titles. Included among these publications are local television and radio broadcast programs. The expansion of the retail trade in periodicals is tending to develop further.

This is explained first of all by the colossal increase of the editions of many publications. Their delivery to the home has become a problem. The bags of mailmen are becoming more and more voluminous and heavy. Consequently, the delivery itself is being carried out more slowly.

Very likely many have been able to satisfy themselves that at the kiosks and stores of Soyuzpechat', of which, incidentally, there are now more than 35,000 in the country, it is possible to buy a newspaper or program considerably earlier than they arrive at the mailboxes of apartments. In this case why not give preference precisely to this form of the dissemination of periodicals? All the more as television and radio programs are regularly published in newspapers.

In our country many people are constantly traveling, embarking on business trips and vacation. But during this time newspapers, which each would like to buy wherever he is at the given moment, are piling up like dead weight in their mailboxes.

I will recall that during the current subscription campaign the so-called subscription with a break is being carried out for the first time. This makes it possible to indicate beforehand the expected periods of vacations or business trips. This form of subscription is especially convenient for instructors, teachers and other categories of workers, who have extended vacations, for students who go to construction projects during vacation.

With the enormous editions of many publications their delivery is expensive for the state. For example, the delivery of a magazine from Moscow to

another city on the average costs 20-30 kopecks. At times it is more than the price of the publication itself. It seems that the subscribers should also know these estimates.

/Question/ What shortcomings, difficulties have come to light during this subscription campaign?

/Answer/ The improper practice of issuing schedules of allocations to public distributors of printed matter, and even for those publications, the subscription to which is not limited, is continuing in places. It is impossible to reconcile oneself with such cases.

Some organizations and enterprises are still trying to order a few more publications at state expense or at the expense of public organizations, and then these publications are used privately. It has already been emphasized that the amounts of departmental subscription should be reduced.

It seems that those who, by taking advantage of privileges, order publications for acquaintances, coworkers, neighbors and so on, are acting irresponsibly. For the organized, precise conducting of the subscription campaign above all is in the interests of the readers themselves.

Among the subscribers there are many people, on the results of whose labor the increase of the output of paper, its quality, processing, delivery and, in the end, the possibility of increasing the editions of many publications directly depend. I will cite just one figure: each ton of paper additionally produced or saved makes it possible to increase the number of subscribers to a year's set of newspapers by more than 100 people. It is necessary to remember this reserve, it is necessary to utilize it as fully as possible.

7807
CSO: 1823

## BRIEFS

TALLIN TELEVISION TOWER--The metal antenna for the Tallin television antenna has been raised to its planned height of 314 meters. Installation was carried out by specialists from the First Leningrad Construction and Installation Administration of the Sevzapstal'konstruktsiya [Northwestern Metal Construction] Trust. The leading installers, N. Kuleshov and T. Vasil'ev, placed a red flag on the tower. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 27 Aug 78 p 4] 8927

CONSTRUCTION OF COMMUNICATIONS CENTER--The erection of a new regional communications center in the settlement of Topar has gotten underway. The mobile mechanized column [PMK] from the Sredazenergostroy [Central Asian Office of the USSR Ministry of Construction of Electric Power Plants] Trust is in charge of the construction. The builders are planning to complete the complex for the communications workers next year. When it is put into operation the capacity of the existing ATS [automatic telephone exchange] will be increased ten-fold. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 27 Aug 78 p 3] 8927

CSO: 1823

## CONSUMER GOODS DEFICIENCIES

### Customers Can't Find What They Want

Leningrad LENINGRADSKAYA PRAVDA in Russian 23 Aug 78 p 2

[Article by A. Travin: "How a Shortage Occurred"]

[Text] I was impelled to pick up my pen by my unsuccessful shopping trips to Leningrad stores. I am looking for a dress -- a wool one, a semi-wool one, or a dress from some other suitable fabric, -- but I can't find the one I need: either the fashions are outmoded or the color is too gloomy, or the size I need isn't in the store.

G. Zaytseva, Engineer

I have a purely autumn concern. I want to buy a jumper or a vest. You can put this on under your jacket, and without a jacket you feel warm and comfortable in it. As you may have guessed I was not able to purchase a vest. True, I saw one in a store on Drasnogvardeyskaya Ploshchad' but it was very poorly sewn and it was violet colored.

A. Petrov, Teacher

I want to make my granddaughter, Alyinka, happy with a new dress suit or a pretty dress. They can be found in the stores, but you don't want to buy them. They are sewn clumsily of dirty grey, black or dark green wool fabric. That kind of product doesn't give me, a grandmother, or my granddaughter any kind of happiness.

M. Orlovskaya

Unfortunately, there are many letters in our editor's box like those which have been sent to us by our readers, G. Zaytseva, A. Petrov, and M. Orlovskaya. The writers addressed just reproaches to the Leningrad Knitwear Production Association -- the city's largest enterprise specializing in the production of outer knitwear products made of wool, semi-wool,

olumetric, cotton, and artificial yarns for adults and children. Letters of this kind are also coming into the City Committee for People's Control.

Our knitgood workers are producing fashionable and original products in limited quantities and they are slow in re-organizing their work which is connected with increasing the production of consumer goods and expanding their assortment. This gives rise to even greater concern, since the association has everything necessary for successful work. A splendid building has been constructed for it. In recent times alone, 117 units of new, highly productive equipment has been installed in the shops. And raw materials, including wool and semi-wool yarns, are being supplied to the association in abundance; it is receiving it at even above-ceiling levels. Why is the tactical potential of the enterprise and the capabilities of its collective not being used to the full extent?

This is precisely the topic at a recent meeting of the Leningrad City Committee for People's Control to which all interested sides, including trade representatives were invited. During the course of the test, it was established that the association is systematically failing to fulfill its plan for production of products in its basic products. During the last two years and seven months alone trade organizations have failed to receive from the firm more than 3,000,000 jumpers, dresses, jackets, pullovers, and other products. An especially bad situation has developed in the production for outfits for children. This year the association sharply reduced deliveries of it to trade. Those little suits and dresses look extremely homely and are sewn without invention, taste, or imagination. This also applies to most of the products for adults.

"It is true, many of our goods are ugly," the chief of production, E. G. Grunina, confesses. "Very often we send the stores not at all what they buyer needs."

Trade, for example, ordered size 3 modern style dresses (fashion 274) to the extent of 48 per cent of the total amount of these products made in the firm's shops. It received 1.6 per cent of them. On the other hand, the same dresses, but size 4, were produced at the level of 96 per cent -- the requisitions of trade organizations were exceeded by more than three times. The secret is simple: This size can be "written in" more easily to the material which is obtained on the KLK machines, and it is less labor consuming. For this reason the scale of sizes and lengths is not observed in the association.

The association tries to produce products (and its leaders were compelled to agree with this approach) which are simpler to manufacture, but which are more expensive. In this way it is easier to fulfill the plan in value indicators. With this kind of attitude there is no time and no reason to think about an efficient use of raw materials, about color diversity in

products, about their judicious distribution through the entire scale of sizes, about assortment, renewal, and about quality improvement. But this problem is facing the firm in all its acuteness.

Last year the knitgood workers were presented with 118 complaints about poor quality. During the last seven months quie a few of them have also been received. The basic defects are a result of violations of production processes.

The association is not coming up to the mark established by the five-year assignment for a rise in labor productivity. Last year the plan for this indicator was corrected four times. This is explained by the lack of an aggressive position on the part of the firm's leaders in the struggle for an increase in production and an improvement in output quality.

During the tenth five-year plan the association was supposed to increase its production by 31 per cent. However, the measures aimed at increasing labor efficiency which have been developed in the association make it possible to raise the production level by only 20 percent.

A disproportion between the knitting and sewing production is greatly hindering further progress. While the yield of knit goods fabrics can be increased by 10 per cent of the knitting equipment, the sewing production which has not fulfilled its program for the installation and mastery of new machinery and flow lines is not prepared for this kind of growth. And, consequently, the knitting productions advance is, as it were, without a basis of support. There is a lot of idle time by equipment. Laborious and manual operations are being mechanized too slowly. The number of workers who are not fulfilling their output norms has increased. As a result yields from capital has undergone an appreciable decline.

How has the industrial association Lentrikotazhprom of which the knitwear production association is a member, reacted to this situation? Despite a lacking from the five-year plan control figures, repeated failures to meet planning assignments for labor productivity and repeated corrections of them, it has twice awarded the firm's leaders with bonuses.

All of these facts were given a principled evaluation at the meeting of the Committee for People's Control. A number of leaders of the knitwear association and Lentrikotazhprom were penalized for the serious shortcomings in the enterprises work. Measures were mapped out to improve output quality and expanded assortment. The heads of the knitwear association were bound to carry out organizational and technical measures at outstripping rates, and to review the production plan drafts for 1978-1980 with the view toward increasing them on the basis of a fuller use of existing capacities and production reserves. The knitwear workers

have provided assurances that as early as this year 374,000 more items of popular and fashionable products instead of outmoded ones will be produced than was originally planned.

The problem of the quality of consumer goods has to be solved. This is a matter of honor for the knitwear workers.

## Lacks in Furniture Goods

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Jul 78 p 2

[Article by L. Biryukova: "A Shortage in Three Dimensions"]

[Text] Dear Editors! By profession I am a designing engineer and since my student years I've been enthusiastic about mountain climbing, have achieved several difficult climbs and have frequently climbed along steep rocky walls. But here is one wall I have not been able to conquer; its name is "mirage." It is not located anywhere in inaccessible mountains but in a neighboring furniture store. In brief: two years ago I received a new apartment, but I am still living surrounded by old chests of drawers. My wife and I have looked at a furniture set named "mirage," but how is one to buy it! One has to kill so much time and effort standing in lines and show such patience....compared to this operation any climb to the most difficult height would appear to be an easy tourist excursion.

What is happening with us in the sale of furniture and when will it end?

D. Kostikov, Moscow

Go into any furniture store and you will see salesrooms packed full of goods. This is the first impression. Is not the writer of the letter, Comrade Kostikov exaggerating? Let us check.

Store No. 28 is on Otkrytoye Shosse in Moscow. An abundance of furniture. All kinds of sets for a room are standing about: "Walls," tables, arm chairs, divans. There are very fanciful ones, and there are some that are simpler. One notices the names of sets: "Urop," "Carman," "Granad," "Antic," "Tanya," "Girage."

And here it is, "Mirage" with a polished wall which the mountain climber Kostikov simply cannot conquer.

A girl is sitting at a desk by the entrance to the salesroom. She is talking on the telephone and during the periods between calls she seems bored. What if we go up to her?

"I would like to buy the "Mirage" from you."

"Only by signing up first."

"Well sign me up please."

"The next signing up will be in 1979," the girl replied.

"But can you be more concrete, and when, at least in what month?"

Since the young girl thoughtfully looks aside and does not plan to reply the customer is obliged to understand how inappropriate this question is and that this elegant furniture is standing in the store "for the sake of furniture," and not for sale.

Let us suppose that you have come into a store not on any day, but on the last Friday of the month. Then it is probable that one of the more permanent and informed customers will tell you where you have to go: walk around the store from the rear and there, near the fence....

An Interview With The Rear

Here, indeed, is lively. People are crowding in groups around several men who are holding warehouse books in their hands. Some arrive, and others quietly remove themselves. Those who are holding the books remain in place.

"What is going on here?" I ask a young woman who is standing to the side.

She introduced herself: Galina Vladimirovna Dyatlova, an engineer at the Central Normativ-Research Bureau of Glavmosoblstroy. Then she explained:

"You can sign up here in a line for a place in the line for the furniture sets."

It wasn't too clear. I asked her to explain in more detail.

"Our line is an unofficial one," Galina Vladimirovna says. "But then, those who overcome it successfully, get into the stores official line. What do you have to do to do this? You have to sign up," -- she nodded at the warehouse book, "and come regularly for the roll call. As long as the line is still a long way off you sign up once a month. When it gets closer -- once a week."

"And do many get weeded out?"

"Yes, only the strongest endure. When I signed up my number in the line was 2,400. And now it is 1,450. I've moved up because of the weeding out."

"And how do you find out on what day the store will announce the sign up?"

"You have to watch for when the announcement is hung out. By the way, this time I was in the store on the day of the sign up period. I had simply come to have a look."

This was on 19 March. An enormous crowd had blocked the street. The militia was there with loudspeakers. At the very doors to the store were those who were among the first 100 in the nonofficial list. Standing in thick ranks, they had stood guard here all night so that no body else would squeeze through to the cherished. Those who were in the front of the line received nothing more than the right to leave post cards with their addresses with the store. The others had to go for a long time to sign up at the fence so that finally on sign up day they would be standing at the cherished doors. This is the face of a shortage.

Its Seamy Side

It also has a seamy side which K. Ryabinin, a doctor from Moscow, writes about in his letter to the editors: Having come to know furniture stores in my search for things that I needed very much, I have noticed that an acute shortage has a bad influence on trade workers. They speak condescendingly with customers. But that is only half of it. There are also those who "arrange" furniture without a line for acquaintances or simply for insistent clients. I doubt they do this gratis. In any case, I myself was a witness to how a store worker took a furniture purchase card from his pocket and sold to a customer "apparently an out-of-towner."

It is difficult to judge whether this is an accidental observation or whether we have here a wide spread situation. But let us conduct a little experiment.

After showing my press card in store No. 28 I asked that I be shown where the cards for the people on line were kept.

"Everything is in the administrator's desk," the young girl at the desk by the entrance replies.

After hearing my request, the administrator, L. A. Shishkina, the keeper of the keys to the safe, no longer looked the same. Then, overcoming her confusion with difficulty, she replied she could not show me anything without the permission of the director, Nina Il'inichna, and right then she vanished into the director's office. Soon after Nina Il'inichna came out and invited me to come into her office. She was also upset. She explained to me for a long time that she could not show me the card catolog of those people who were on line. She cited one argument: She just couldnot and that was all. It was simply impossible.

It was curious to observe the quiet commotion that was caused by so ordinary a request. Indeed, if the card catolog had been kept in accordance with the rules of the trade, then why conceal it with such stubbornness? This conspiracy by itself gives rise to the thought that there is something to hide.

It would only be necessary to hang out the lists in a conspicuous place and regularly show the movement of the line after the receipt of goods so that everyone could be convinced of the fact that everything was being done honestly and without machinations and deception.

There are quite a few letters in the editor's mail which describe violations of the rules of furniture trade in various cities. Of course, it is possible to catch one or another store worker who is growing rich on shortages. But it is much more important to eliminate the basis for the violations -- the shortage itself. We will no longer turn it inside out. Let us investigate its roots instead.

What Does A Person Need

We have all noticed recently how furniture which the specialists call block furniture -- wardrobes, sideboards, and so forth -- have been changing its form. They have gotten taller and have become shallower and have begun to take places close to one another, side by side, spreading out along the walls. This is what a person needs. He needs furniture to occupy as little space as possible, and to be not only convenient but also economical.

Sectional sets of the "Stenka" type have now become very popular. Everyone who has not yet bought a "Stenka" wants to buy one.

Store No. 1 on Petrovka. Here sets of domestically produced sets of furniture are sold.

"How many "Stenkas" come into the store a day?" I asked the salesman.

"Usually three to five. Last month there were fifteen."

"And how many people are asking for them?"

"Several hundred every day."

The Moscow Furniture Assembly Combine No. 2 which supplies this outfit to the store failed last year to provide Mosnabyltork with 2.3 million rubles worth of goods. Since the beginning of this year alone the figure stands at 800,000 rubles. What is the problem?

"On the whole, we are fulfilling our deliveries plan," says P. R. Rumyantsev, the director of the combine. "But its true, that we are not supplying Moscow in full."

The director's words mean the following: Although there is not enough furniture in Moscow, the enterprise whose task it is to supply the capitol ships a substantial part of its output to other oblasgs. Not for good reasons, of course, but for the reason that low quality makes it impossible to sell this output in Moscow. And so the furniture goes to places where, maybe, it will find a buyer.

No one argues against the fact the quality of domestic furniture has undergone a marked improvement in recent years. Its best models are successfully competing with import models: There are no fewer of those who wish to buy the soft furniture set "Gupan," "Jenki," "Oylhofka," and "Sputnik" than of those who have signed up for a line for the foreign sets "Carmen" and "Antic." But the trouble is that it is just as hard to buy our domestic "Oylhofka" as it is to buy the imported "Carmen."

High class furniture is being produced by our industry in homeopathic doses. According to the statistics, the highest quality category output occupies only 11 per cent in this branch. This means that the remaining 89 per cent of the furniture is made up of the ordinary and extraordinary furniture. The buyer is not at all in agreement with this kind of proportion. Give him 89 per cent of first class output and then he will somehow be able to use the 11 per cent of ordinary furniture in his home. The gap between supply and demand, which is called a shortage, is being narrowed extremely slowly.

An Interview In The Ministry

The chief of the furniture industry of the "Ministry of Timber and Woodworking Industry USSR, A. P. Alekseyev, invites one to cast a glance at the branch which he directs as a whole. It really is developing at good rates: During every five-year plan capacities increase by 1.5 times. In recent years half of the assortment has been renewed. "We are doing a lot of work in the direction of quality," Anatoliy Pavlovich says. "We have set ourselves the task of achieving and outstripping development for the production of products which are in high demand. In a word, the branch is on the right path."

It is difficult not to agree with the chief of the main administration. However, the whole question is the speed with which movement is being made along this true path. Let us analyze, for example, the dynamics of output quality improvement. In 1976, 231 million rubles worth of highest category output was produced, last year -- 411.7 million rubles worth, and in the plan for this year there is the figure 507.7 million rubles. There is a certain slowing down of the rates here, although a sharp acceleration is demanded. Even a leap forward.

The branch as a whole is increasing capacities quite energetically. However, the production of furniture in the area of the Urals, Siberia, and the far east is developing extremely slowly. Trains carrying timber come from the eat to the west and they are met by trains coming from the west to the east carrying furniture. Every year these shipments have been increasing. Thus, in 1975 the enterprises of the European part of the country supplied Siberia with 85.4 million rubles worth of furniture, while last year the figure was already 102 million rubles, which required 20,500 railroad cars. And to carry furniture is the same as carrying air....

Everybody understands that regions which are so rich in timber should supply themselves with furniture. But how is the Ministry of Timber Industry accomplishing this task? Very listlessly. It reconciles itself to the fact that it takes a long time to build new factories. Their commissioning dates are constantly not being met. Thus, in Novosibirsk a furniture factory was "teased out" for almost ten years. Construction is going on now in the same way in Yakutsk.

The furniture enterprises of Tyuneaskaya Oblast are capable of satisfying only one half the population's needs, but for some reason the Minister of Timber Industry is not planning to create new production units here or to substantially expand the old ones. Yet, the dimensions of housing construction in the oblasts are enormous and the population is growing rapidly. It is quite clear that the shortage of furniture threatens to become even more acute.

Yes, today's buyer is very exacting. He needs many things: That excellent furniture be sold and that there be enough of it both in the capitol and everywhere else in other places. Is this realistic? It can be asserted with all responsibility that it is realistic. There is a method of achieving the fulfillment of all of the requirements in a very rapid period. But about this in the next letter.

2959
CSO: 1823

## CONFERENCE ON USE OF LABOR RESOURCES REPORTED

Moscow IZVESTIYA AKADEMII NAUK SSSR SERIYA EKONOMICHESKAYA in Russian No 5, 1978 pp 154-160

[Report by V.P. Pankratova and V.A. Romanova: "The Effectiveness of Labor Resource Use"]

[Text] The main trend in our nation's economic and social development at the present time and for the foreseeable future is that of raising the effectiveness of public production in every way. The struggle for effectiveness and quality, L.I. Brezhnev stressed at the 18th Komsomol Congress, "is not a temporary campaign. It is a long-range course set by the party in earnest, so to speak. Therein lies not only the key task of the current five-year plan, but also the determining factor in our economic and social development for many years ahead."[1]

One of the current problems involved in raising the effectiveness of public production is that of making efficient use of labor resources. The latter constitutes one of the main conditions for dynamic and proportionate development of public production, acceleration of scientific and technological progress, growth of labor productivity and further improvement of the Soviet people's material and cultural standard of living on that basis.

A conference was organized by the State Committee on Labor and Wages Under the USSR Council of Ministers, the USSR Gosplan, the State Committee for Science and Technology, the USSR Academy of Sciences, the All-Union Central Council of Trade Unions and the USSR Ministry of Higher and Secondary Specialized Education. Taking part in the conference were officials from the CPSU Central Committee and the USSR Council of Ministers, planning and labor agencies, representatives of academic and branch institutes and higher educational institutions, and practical workers.

The conference was opened with an introduction by V.G. Lomonosov, chairman of the State Committee on Labor and Social Problems of the USSR Council of Ministers. He noted the increased urgency of the problem of making efficient

1. PRAVDA, 26 April 78.

use of labor resources. He stressed the fact that with respect to its goals and tasks and to the reports and speeches outlined in the program the conference should embrace the entire group of problems related to the main directions to be taken in making the use of labor resources more effective.

At the morning plenary session reports were heard on the main directions taken in raising the effectiveness of labor resource utilization in light of decisions of the 25th CPSU Congress; on ways to improve labor resource utilization and to accelerate the growth of labor productivity; on increasing the production activity and the creative initiative of the labor collectives and instilling a communist attitude toward labor as the most important factors for raising the effectiveness of public labor; and on the social and economic problems involved in drawing the youth into public production and raising the effectiveness of their labor resources. Reports delivered at the evening plenary session dealt with such problems as that of strengthening the workers' health, the most important factor with respect to improving labor resources; regional peculiarities in the utilization of labor resources in the RSFSR; and the main directions for scientific research work in the area of making efficient use of labor resources.

Reports were delivered at the plenary session by L.A. Kostin (USSR State Committee on Labor and Wages), A.V. Bachurin (USSR Gosplan), I.M. Vladychenko (AUCCTU), D.N. Filippov (Komsomol Central Committee), S.N. Burenkov (USSR Ministry of Health), A.G. Sozykin (RSFSR State Committee on Labor and Wages), and Ye.I. Kapustin (Institute of Economics of the USSR Academy of Sciences).

The speakers pointed out the basic, qualitative changes occurring in the contemporary situation with respect to labor resources as the result of the successes achieved by the nation of developed socialism. L.A. Kostin stressed the fact that the new Constitution of the USSR constitutes a freedom-of-labor manifesto. He discussed the mechanisms inherent in developed socialism for the reproduction of labor resources: full employment and a high level of labor activity, improvement of the workers' educational level, the development of an efficient work force structure, and intensification of state regulation and control of the reproduction of labor resources.

The reports outlined the central problems involved in improving the effectiveness of labor resource utilization. It was particularly stressed that the problem of making complete and efficient use of the work force is one of the main national economic problems. It will continue to be of special importance due to the changing demographic situation.

The speakers also noted that intrashift utilization of the work force can still not be considered satisfactory. Large losses of work time result primarily from deficiencies in labor organization. Workers and employees are not always used in accordance with their skills, for example, and many are still engaged at unproductive subsidiary jobs, which are frequently performed by hand. The level of scientific substantiation provided for setting labor rates is unsatisfactory. The keeping of records and the analyzing of work time utilization is still not properly organized.

The reports directed attention to the need to alter proportions in the distribution of capital investments, with a view to applying them primarily to the reconstruction of existing enterprises, accelerating rates of mechanization of manual labor, insuring evenness of production, and disseminating more extensively such progressive forms of labor organization and wages as the Shchekino method, the brigade contract and others. Special attention was devoted to the matter of bringing the system of general education and occupational training, as well as on-the-job training, into conformity with modern requirements. It was noted, for example, that conditions and forms of involving the youth, specifically those on vacation, into labor, are poorly studied. Further improvement is needed in the job placement system and the system for redistributing labor resources among the nation's enterprises, branches and regions.

Stress was laid on the need to activate scientific developments with respect to the problems of reproduction and utilization of labor resources. In this connection mention was made of raising the level and improving the organization of scientific research in the area of labor resources, as well as coordination of this work.

The complexity and broad scope of labor resource problems are giving rise to intensification of centralization principles in the management of labor. Improving the work aimed at achieving more effective labor resource utilization requires joint efforts by workers of the ministries, departments, enterprises and organizations in all sectors of the national economy, trade union, Komsomol and other public organizations, as well as agencies in charge of planning, labor, record-keeping and statistics.

The issues considered in the plenary reports were further illuminated and concretized in the sessions of nine sections on special problems. They discussed a broad range of issues pertaining to the entire group of problems involved in reproducing labor resources. The vast amount of material received by the conference organizing committee attest to the urgency of these problems.

More than 1,000 people participated in the work of the sections. More than 130 individuals addressed sessions of the sections.

The first section focused on problems pertaining to reproduction of the population and labor resources of the USSR. Specifically, they considered patterns of development of the national population and labor resources, and their interrelation with the social and economic progress of the society of developed socialism. Attention was directed to problems of social and economic development, control of demographic processes and employment of the labor resources of small and large cities and the rural area.

In the section "Problems of the Employment Structure in the Socialist Society. The Peculiarities of Employment of Individual Categories of the Population" special stress was laid on problems of utilizing women's labor in public

production, and pensioners, as well as employment of the youth. Specifically, a great deal of attention was devoted to further improvement of the labor indoctrination of the youth, improvement of their occupational orientation and improvement of the level of indoctrinational work conducted with the youth at enterprises and in organizations. It was noted that we must improve the system for involving students in publicly useful labor by means of student detachments, student production brigades and so forth. The speakers stressed the fact that ministries, departments, enterprises and organizations must raise the production labor activity of the youth and involve them more extensively in the resolution of economic, social and cultural problems. Attention was drawn to the need for enterprises to adopt more extensively working rituals contributing to the youth's successful adjustment in labor collectives.

Problems pertaining to improving utilization of the work force in the national economy occupied a special place in the work of the sections. These problems were the focus of sessions of such sections as "Ways to Make the Utilization of the Work Force More Effective in Industry, Construction, Transport and Communications," "Labor Resources of the Rural Area and Ways to Make Their Utilization More Effective" and "Ways of Improving the Formation of the Work Force and Making Its Utilization More Effective in Branches of the Nonproductive Sphere."

Changes occurring in the structure of public needs and production's capabilities are resulting not only in a redistribution of the work force in material production but also in a change in the correlation of those engaged in the production and nonproductive spheres. Improvement of the workers' welfare and all-round development of the individual require the development both of material production and the nonproductive sphere. These spheres are mechanically united and interrelated without losing their separate importance. Interaction between material production and the nonproductive sphere is two-way. The direct relationship consists of the fact that the higher the level of development of public production the more public labor can be directed toward the development of education, culture, science, health and so forth. Raising the effectiveness of public production makes it possible to increase the portion of those engaged in the nonproductive sphere. At the same time, development of the nonproductive sphere has an ever increasing effect on the processes involved in expanded reproduction and on all aspects of public life.

With the increased scope and intensification of the social and economic role of the nonproductive sphere it has become necessary to raise the effectiveness of the labor of workers engaged in it considerably. There is an increasing need to seek internal reserves for increasing effectiveness and improving the quality of labor based on the practical application of achievements of the scientific and technological revolution and scientific organization of labor.

Rates of growth of absolute and relative employment in the nonproductive sphere require scientifically based methods for measuring the effectiveness of the labor functioning in it, both individual and collective. It was noted in particular that in many branches of the nonproductive sphere the evaluation of effectiveness should be based not on a minimizing of outlays but on their

optimization, providing services of corresponding quality. In the modern situation the effectiveness of the work performed by workers in the nonproductive sphere depends greatly on improving the quality of services. For this purpose it is important to develop a well-founded system for controlling the processes involved in the development of quality, keeping the achieved level stable and continuing to raise it.

In recent years individuals engaged in the home and on personal, subsidiary farms, pensioners and the student youth have been drawn into the nonproductive sphere on a broad scale. The development of such forms of employment as part-time work and cottage industry has played a significant role in the development of additional sources of work force for the national economy, primarily in branches of the nonproductive sphere. It was stressed that this creates realistic possibilities for combining jobs. It was also stated that in order to disseminate the system of combined jobs, along with improving the organization of labor and the setting of standards, we should also define the list of occupations in which the combining of jobs is encouraged and work out a job placement procedure and wage terms in accordance with the quantity and quality of the work.

It was noted that at the present time there are frequent cases of inefficient use of specialists, which are systematically drawn upon to perform functions not in their field. The organization of the specialists' labor still lags behind the achieved level of technical equipment. All of this reduces the effectiveness of their use and the quality of the work performed by the equipment.

Development of the nonproductive sphere in a situation of limited growth of labor resources is making it especially urgent to conserve worktime. The effect of the time conservation is manifested not only in the planned distribution of labor resources throughout sectors of the national economy but also in a reduction in all types of inefficient expenditures of labor and time. This is expressed in a public effect in the form of an increase in the amount of free time enjoyed by the workers as the result of their shorter workday and more efficient use of time off the job. Effective use of the worktime of those engaged in the nonproductive sphere has a direct effect not only on the amount of material goods produced but also on the volume and quality of services and on the individual's physical and spiritual development. At the same time the great diversity of functions performed by enterprises and establishments in this sphere, differences in the conditions of their work and especially the difficulty involved in measuring and recording the results of this work limit the incentive possibilities of the wage forms and systems. This necessitates more extensive use of effective and flexible bonus systems and the combining of material and moral incentives in the nonproductive sphere. The average wage of those engaged in the nonproductive sphere is now considerably lower than that of individuals engaged in material production. And this creates additional difficulties in attracting workers into the service branches.

We have now completed the first phase of raising the salaries and rates of workers in the nonproductive spheres in the nation's remote eastern and northern regions. Studies performed by economists have demonstrated the favorable effect of this raise with respect to reducing personnel turnover, increasing responsibility and other important elements of the labor situation. The future prospects of wage dynamics for those engaged in the nonproductive sphere relative to material production, however, require thorough theoretical substantiation.

Among the urgent problems involved in making more efficient use of the labor of workers in the nonproductive sphere includes that of improving working conditions. The state of industrial safety measures at certain enterprises and in certain organizations and establishments of the nonproductive sphere still does not measure up to the requirements set. Furthermore, it was noted that the nature and substance of the work is changing from the direct effect of scientific and technological progress. Because of this the problem of making the work esthetically attractive is acquiring special significance. Improvement of the labor processes should be accomplished in branches of the nonproductive sphere with a view to insuring that the nature of the work is in keeping with the harmonious development of the workers. Changes occurring in the nature of the work are making new demands of the level of the workers' skills and new requirements with respect to the efficient combination of types of work differing in complexity.

The setting of labor rates is one of the priority tasks in the area of improving the utilization of workers in the nonproductive sphere. The setting of labor standards for workers in the nonproductive sphere is among the least developed problems of scientific organization of labor. It is more difficult to set labor standards for workers in the nonproductive sphere than for those in material production, since in the former case we are dealing with labor processes in which intellectual work predominates, work which does not lend itself to direct observation and measurement. We must take into consideration the considerable diversity in the nature of the jobs, the nonuniformity of the periods required to perform them and their evaluation not only with respect to labor expenditures but also with respect to the results achieved. All of this is making it necessary to seek new methods of setting standards, methods which fully reflect the specific nature of the labor performed by workers in the nonproductive sphere.

For purposes of improving the setting of standards in the work of managing labor resources it was proposed that we summarize experience in the setting of labor standards and develop a plan of measures to further improve it with the intention of considerably expanding the number of jobs and workers covered by standards, strengthening the technical and economic basis for applying labor standards, and improving the procedure for approving and reviewing standards, intensifying the plan principles in the setting of standards.

The expedient distribution of enterprises and establishments in the nonproductive sphere is a significant factor contributing to a better supply of workers for the economy. It should contribute to the resolution not only of tasks involved in improving the people's welfare but also those involved in increasing labor productivity and retaining workers in newly developed areas. The opinion was expressed in this connection that it is essential to establish a procedure requiring that ministries and departments in the production branches coordinate with local labor agencies plans for the construction, expansion and reconstruction of enterprises in the nonproductive sphere and for providing them with labor resources in the corresponding centers of population and territories. It was noted that a considerably larger role should be assigned to local soviets of workers' deputies in directing the distribution of enterprises and establishments in the nonproductive sphere, regardless of their departmental affiliation. It was also recommended that central economic agencies establish the order of capital construction, reconstruction and expansion of production facilities, which would provide for the mandatory allocation of funds for the construction of enterprises and establishments in the nonproductive sphere, the extent of which would depend on the number of workers at production facilities. It would be expedient to concentrate the funds allocated in local soviets of people's deputies, which would function as sole clients for the construction of enterprises for trade, public catering, housing and utilities, and personal services, and social and cultural service establishments.

Further improvement of the planning of labor resources will be necessary in order to make their utilization more effective. The balance method is an extremely important instrument for planning labor resources. As an important component of the national economic balance labor resource balances play an important role with respect to analyzing their utilization and planning. It is recommended that detailed labor balances be used more extensively: balances of time, skilled workers and specialists. In order to improve the planned management of labor resources in the nonproductive sphere it was deemed desirable to introduce the planning of the number of workers at enterprise, organizations and establishments, and to include in labor record-keeping indicators of the numerical strength and professional composition of the personnel, and others.

The work of the section "Regional Problems Involved in the Formation and Utilization of Labor Resources" is worthy of attention. A characteristic feature of regional studies is the revelation of the distinguishing features of the formation and utilization of labor resources within a given territory. This process requires statistics on natural and climatic, historical, economic and other specific features of the region. The development of long-term territorial balances of labor resources is an important methodological procedure for utilizing and resolving the aggregate of problems involved in providing labor resources within each territorial unit taken separately. It was stressed that the development of these balances involves the task of insuring complete coordination of indicators of the formation of labor

resources and their distribution (for types of employment and sectors of the national economy), taking into account labor productivity based on the achievements of scientific and technological progress and proceeding from the required number of new work stations. The attention of participants in the section's session was directed to experience in creating agroindustrial complexes in Lithuania and Estonia. It was also pointed out that the creation of a sole agency to handle occupational training is one of the current problems.

It was noted that secondary education as a standard of the socialist way of life is a specific feature of the contemporary stage of our nation's development. In recent years secondary vocational and technical schools and tekhnikums, as well as evening (shift) educational schools, have played an important role in the realization of universal secondary education, along with the secondary general education school.

Optimization of the different forms of professional training is an important issue in the training of workers.

The training of skilled workers in vocational and technical schools should be performed in the complex occupations, which require lengthy training periods. In order to satisfy the enterprises' current requirements for those professions and specialties, which are not taught in vocational and technical schools as a rule, we must provide advanced training at the production site for workers with a break in their work or those who have changed their job.

It was pointed out that expanding the training of specialists with a higher education, increasing the number of VUZ's and work stations for young specialists, the availability of a constantly increasing contingent of specialists and the increasingly varied demand for them will require improvement of planning in the training of specialists, improvement of the training process at VUZ's and efficient use of their graduates. It will only be possible to improve the training of specialists and use them more effectively if a common effort is made in the task of drawing together elements of the unified "education-science-production" complex, with skillful combination of the branch and territorial aspects of the planning of the training and distribution of young specialists.

The attention of participants in the section "Improving Methodology in the Planning and Management of Labor Resources" focused on improving the balance method for planning labor resource utilization. It was noted that this improvement should be aimed at intensifying the active role of the planned labor resource balance in the development of the national economic plan.

It is proposed that planned labor resource balances be compiled in two phases in order to make efficient use of the economically active segment of the population. A preliminary balance should be compiled at the stage of preparing the main directions for development of the national economy, which would take into account such indices as growth of production volume, scales

of development of the services sphere and the increase in labor productivity. The final balance would be compiled in the second stage, taking into account personnel requirements of the spheres of public production, development of the network of service enterprises and establishments and the planned number of students of working age in full-time training.

As one of the instruments of national economic planning the labor resource balance has limited application and can only be used for large territories: the nation as a whole, Union republics and economic regions. This balance can be applied for administrative regions and cities, but information on the age-and-sex makeup of the population, the composition of the nonworking segment of the population and so forth would be necessary for planning the size of labor resources.

Stress was laid on improving the methodology used to determine the national economy's work-force needs. It was noted in this connection that the importance of substantiating requests for labor resources from the branches and the concern of enterprises for conserving the work force is increasing sharply at the contemporary stage.

Specifically, the problem of labor was discussed as the object of management under developed socialism. The national economy constitutes the structure of a publicly organized field of application of the work capabilities of all members of society who have reached the working age, which is continuously expanding both quantitatively and qualitatively: the object and means of labor are changing, new technological processes are being used, and interbranch and production proportions, economic ties and the nature of the dependency between the structural subdivisions are changing. When defining labor as an object of management it is essential to embrace all spheres of employment of man's labor. The process of managing labor cannot be carried out without precisely establishing its specific boundaries as the object of management.

Reports from the section heads were heard and approved at the concluding plenary session.

The All-Union Scientific and Practical Conference produced a draft of recommendations based on the proposals advanced at the plenary session and in the section meetings for further improving labor resource utilization.



11499
CSO: 1823

## IMPROVEMENT OF LABOR CONDITIONS AND SAFETY DISCUSSED

Moscow IZVESTIYA AKADEMII NAUK SSSR SERIYA EKONOMICHESKAYA in Russian No 5, 1978 pp 80-89

[Article by A.V. Bykhovskiy and A.L. Maksimov: "Economic Problems of Improving Labor Conditions and Safety"]

[Text] The following article discusses methods of providing economic incentives for measures to improve labor conditions and safety. It provides a summarization of progressive experience of industrial enterprises and a theoretical analysis of the problem to demonstrate the advantage of the method of providing incentives for direct measures to improve working conditions over incentives based on the record of the consequences of unfavorable conditions and violations in the area of labor safety (traumatism, morbidity, information on hazardous-work benefits).

### Achievements and Unresolved Problems in the Area of Labor Safety

The 25th CPSU Congress indicated the development and adoption of measures to further improve labor conditions as one of the most important social tasks. This task essentially goes far beyond the scope of individual enterprises and sectors of the national economy, acquiring its most compelling importance with respect to the physical and spiritual development of the individual. Modern scientific and technological progress is determining to a considerable degree and objectively contributing to the all round-improvement of working conditions.

More than 120,000 various measures are carried out annually in USSR industry to improve working conditions, accounting for almost one-fourth of all funds allocated for the realization of NOT [scientific organization of labor] plans. Expenditures on labor safety measures are given below (in millions of rubles):

| Year | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|
| Expenditures | 1,292 | 1,394 | 1,494 | 1,631 | 1,795 | 1,892 | 2,025 | 2,150 |

In addition, the state allocates around 1.5 billion rubles annually for the production of special clothing, footwear and other personal protective equipment. With these expenditures included 10.7 billion rubles was spent to improve labor conditions and safety during the Eighth Five-Year Plan, and 15.4 billion rubles during the Ninth. An even greater amount is being allocated for these purposes during the Tenth Five-Year Plan.

The Soviet Union is among those nations with a low and steadily declining level of industrial injuries. Industrial accidents in the material production sphere dropped by 20 percent between 1970 and 1977.

From the economic point of view the creation of a production environment advantageous to the workers' health constitutes an important reserve for raising public labor productivity and production effectiveness.

Decisions of the 25th CPSU Congress define the social aspects of the improvement of labor conditions and safety. They include more than just the prevention of accidents and industrial illnesses: after all, it is a matter not only of protecting the health of workers at the working age but also of creating the very best conditions in industry and living conditions which make it possible to prolong the working age itself. It is precisely on this basis that we must create specific plans of measures to improve the state of labor safety at enterprises. The extremely large amounts of money spent to improve working conditions, however, do not always produce the full effect by far.

There are many unresolved issues in the theory and practice of labor safety, which reduce the effectiveness of efforts applied in this area. A great deal of worktime is still lost due to illnesses, for example. They are as high as 10 to 12 days a year per worker at many industrial enterprises.

In order to understand the theory and practice of providing economic incentives for improving labor safety we must first of all analyze, at least briefly, the present state of affairs in this area at industrial enterprises. Existing statistical data on these matters suffer from a number of deficiencies, however. Of the large number of existing forms of records and statistical information for evaluating the workers' labor conditions only information on the number of workers receiving hazardous-work benefits can actually be used. Furthermore, the fact that certain hazardous-work benefits are being received is by no means always a precise reflection of actual labor conditions.

There is unquestionably a functional dependency between hazardous-work benefits and labor conditions, but this dependency is extremely complex and is not a direct one.

Let us say, for example, that a new technology is being employed at an enterprise, which involves the emission of vapors of one of the mercaptan compounds in the work area, and that 300 workers are exposed to it. The maximum permissible concentration (PDK) has still not been established for this substance.

Years pass before the PDK is established, the degree to which existing levels of mercaptan compounds in the air exceed the PDK is proven. Documents are drawn up for providing the workers with hazardous-work benefits, which are then approved by higher authorities. As a result the workers receive benefits, and the information is sent to the TsSU [Central Statistical Administration]. As a rule, during this time the enterprise has managed to work out measures to reduce the level of the harmful substance's effect on the workers. Therefore, during that year when TsSU information shows that the number of individuals receiving hazardous-work benefits at a given enterprise is increased by 300, the actual labor conditions there have not only not deteriorated but have actually improved in comparison with the previous year or years. In this example a sort of discrepancy is formed between the dynamics of labor conditions and the number of individuals receiving hazardous-work benefits.

Let us take another case. High concentrations of lead aerosols and vapors have long existed in the working area at an enterprise for smelting lead from ore, and practically all of the personnel at this enterprise have received hazardous-work benefits. The adoption of a new technology has improved labor conditions considerably, but the concentration has still not been reduced to the PDK. In this case the number of individuals receiving hazardous-work benefits remains unchanged, whereas there has been an objective improvement of labor conditions (although these conditions are still not good). In this case the number of such workers does not reflect the improved labor conditions.

Or take yet another example, that of an arsenic plant at which the workers were formerly affected by high levels of arsenic. Thanks to the efforts of the collective, radical alteration of the technology has reduced the arsenic concentration in the air to a level below the PDK. In a formal sense this could have provided grounds for cancelling the hazardous-work benefits. Such a rectilinear tactic would have been undesirable, however, since it could destroy the psychological atmosphere in the collective and result in a lack of interest in improving the equipment and technology. Furthermore, even with the highest level of effectiveness of the technical means, which would minimize the danger of harmful substances, it does not exclude the possibility of accidents, and this also makes certain compensation necessary. Even with a radical improvement of labor conditions the number of individuals receiving hazardous-work benefits therefore frequently remains unchanged.

When resolving the issue of forms and amounts of compensation for a number of occupational groups the enterprise administration is forced to consider not only the objective labor conditions at the work stations but also the social-psychological factor — the unpopularity of certain occupations (due to their low prestige, fears of injuring ones health and so forth). This perfectly real necessity, one which lends itself poorly to specific record-keeping, however, further complicates the already complicated question of the correlation between the workers' labor conditions and hazardous-work benefits (compensation costs). An extremely critical approach should therefore be taken when attempting to evaluate labor conditions at an enterprise

based on the number of individuals receiving certain benefits as a result of its adverse labor conditions. Reliable (comparable) objective methods involving instrument studies and measurements must be used for evaluating labor conditions and their dynamics.

Unfortunately, the results of studies conducted by industrial health laboratories are not taken into proper account at the present time. With respect to indirect methods, particularly the absolute and relative number of individuals receiving hazardous-work benefits, due to their uncontrolled deviations from the linear dependency these methods and indices cannot be considered a reliable reference point for judging labor condition dynamics. They do not provide an adequate description of labor conditions and at best can only reflect their consequences. The fact that such a frame of reference is still used in some cases is more an indication of the absence of thorough, scientifically based theoretical and practical developments in this area.

In addition to the fact that hazardous-work benefits do not reflect sanitary standards, their deficiency is also related to the practices established for spending funds on labor safety measures, including the practice of providing material incentives for such measures.

Funds spent on labor safety can be diagramatically subdivided into two groups: 1) direct expenditures to improve labor conditions, including improvement of the equipment (basic outlays), 2) outlays in the form of compensation for the effects of adverse labor conditions, specifically the payment of hazardous-work benefits, medical certificates connected with industrial illnesses, and so forth (compensation costs). Over the past 10 to 15 years the cost of countermeasures against morbidity in our nation has increased at a rate exceeding the growth of the national income, the public product and the number of workers, which should be considered normal for a socialist society. However, the portion taken over by basic costs, including material and technical labor safety needs, amounts to approximately 42-45 percent of the total amount spent, yielding to expenditures for eliminating the consequences of adverse labor conditions (50-55 percent). This difference is far greater at certain enterprises. At one of the metallurgical plants in the Urals, for example, basic expenditures on labor safety (ventilation, sanitation and personal-use facilities, and safety engineering) amounted to 23 percent of the total, and compensation costs accounted for 77 percent. Compensation costs accounted for 72 percent of the total at the Okhtinskiy Wood-Working Combine, and to 42, 53, 66 and 72 percent at other enterprises investigated or questioned. These ratios, which to a considerable degree develop without control, indicate an acute need for management of the labor safety strategy. In our opinion, the main effort should be focused on resolving the main task, that of combining achievements of the scientific and technological revolution with the advantages of the production relationships of the developed socialist society in order to provide the best labor conditions.

The data presented above, which pertain to the Eighth and Ninth Five-Year Plans, also result from the fact that compensation costs in many cases serve as a sort of "stimulus" in the campaign against personnel turnover and enterprises.

The resolution of this problem, however, as well as the problem of improving labor conditions as a whole, cannot be reduced to a matter of compensation costs and benefits. It requires a complete set of organizational, technological, hygienic and economic measures. Placing new methods of providing economic incentives for labor safety into effect requires the creation of greater interest on the part of enterprises and improving labor conditions with the basic measures and not by increasing compensation expenditures.

The System of Providing Economic Incentives for Labor Safety Measures

One cannot agree with the opinion that the "principle of financial interest" cannot be applied in the area of labor safety.[1] The provision of material incentives for the achievement of good work results includes a struggle not only to fulfill the plan, increase labor productivity and improve product quality, but also to improve labor conditions themselves, without which it is impossible to achieve good indices in the area of production efficiency.

It is expedient for each enterprise with an independent budget to have developed regulations on material and moral incentives for improving labor conditions and safety, to define in them the role and place of non-subsidized funds formed both from profit and from wage funds, funds for the development, introduction and assimilation of new equipment, and so forth.

Rejection of the existing compensating principle by which enterprises make social security contributions may be one of the perspective methods of making enterprises financially interested in taking effective steps to optimize labor conditions. It would appear logical to make the size of the contribution dependent on the level of industrially-caused and occupational morbidity. The higher the morbidity rate, and, consequently, all other conditions being equal, the worse the labor conditions at a given enterprise, the greater is the loss to society and the greater should be the enterprise's contribution to reimburse the state for those expenditures with which it compensates for those adverse labor conditions.

Also worthy of attention is the proposal submitted by enterprise workers on the need to set up an experiment to create a common fund for improving labor conditions and safety at enterprises.

In our opinion the creation of healthy and safe labor conditions should be based on the following important elements:

—organizational-technical measures aimed at creating safe labor conditions;

1. "Khozyaystvennaya reforma i trudovoye pravo" [Economic Reform and Labor Law], Moscow, "Nauka," 1970, p 334.

—analysis of the causes of traumatism and various illnesses produced by or related to production;

—the employment of economic (material) and moral incentives for improving labor safety.

Various forms of material incentives are employed at industrial enterprises, which take into account and evaluate measures to improve labor safety.

A summarization of the work performed by certain enterprises to improve labor safety, which was performed under the Eighth Five-Year Plan by the All-Union Scientific Research Institute of Work Safety of the AUCCTU, showed that 17 of 36 enterprises use economic incentives in one form or another for improving labor conditions and safety. Of those 17 enterprises 12 provide material incentives for individual workers, while the remaining 5 use combination methods in their subdivisions (economic incentives formed out of the production development fund, material incentives paid out of the material incentive fund, and moral incentives).

At 25 of 36 enterprises queried the size of bonuses for workers in those sections which realize indicators for improving labor safety range from 10 to 20 rubles (quarterly, monthly). At a number of machine-building plants up to 3.0 percent of the material incentive fund is allocated for providing incentives for workers to improve labor safety. These funds are used to provide incentives for workers of machine repair shops and construction sections. The method of raising the safety level has been adopted at a number of enterprises (the Belotserkovskiy Agricultural Machine-Building Plant, the Volga Bearing Plant, and so forth). This method essentially consists of compiling a comprehensive plan to prevent injuries and occupational diseases. It is used as the basis for determining the safety level. The formulation and organization of objective record-keeping, accountability and information on the actual state of labor safety, safety engineering and occupational diseases are extremely important. Of great importance are the steps taken to combat existing cases of incorrect information provided for purposes of making the situation appear better, and sometimes, through the fault of individual leaders, of concealing violations of standards set by labor laws in order not to lose various types of rewards and bonuses. Safety technique booklets have been adopted at certain enterprises for each worker. The booklets contain several detachable coupons. When a violation of safety techniques is detected the next coupons are removed from the booklets of the guilty parties.

When evaluating such experience it is essential to take into account the ineffectiveness of "repressive measures" as a means of improving labor conditions. Such measures can only have a positive effect with respect to the improper conduct of people such as nonobservance of traffic rules. As a rule, however, adverse labor conditions at enterprises are not the result of improper conduct on the part of the workers alone, but also result from deficiencies in the work of engineering and technical personnel. Under such circumstances the use of "detachable coupons" is more apt to create the appearance of a certain system of preventive measures than to be an effective means of improving the existing situation. An investigative analysis of enterprises reveals

cases of exaggerated rating of the merits of the means employed, which are frequently elevated by their authors to the rank of a "system," a "method of operation," or "progressive experience," while important deficiencies of such "systems" are essentially not taken into account.

We consider it possible to single out two basic forms of incentives: those based on indicators of labor conditions and those based on indicators characterizing the consequences of adverse labor conditions, specifically, morbidity and injuries. Despite the publication of a number of works in this field and considerable experience acquired at industrial enterprises in the use of various incentive forms, this matter can still not be considered adequately developed.

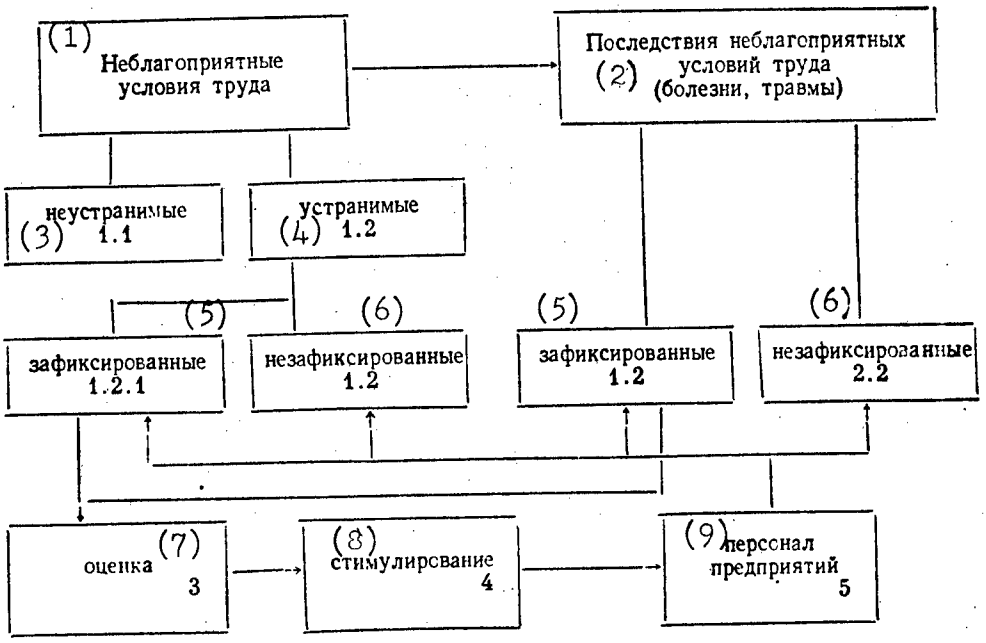
The fact that until recently there has been no extensive summarization of accumulated experience is one of the most important causes of this situation.

In order to thoroughly develop effective economic incentive measures for efforts to optimize labor conditions and safety it is essential to analyze in detail the mechanism by which these conditions are created, to define forms of interaction between the economic factors, on the one hand, and the structural elements of production creating these conditions, which are of a material-technical and organizational nature, on the other. It is advisable first of all to consider the correlation between the economic steps taken and the cause-and-effect relationships objectively existing under the given production conditions as the basis for such a detailed analysis.

Digressing from the specific forms and manifestations of that difference which exists with respect to labor conditions, their consequences and economic incentive means, from the viewpoint of the system-structural approach all of these variations can be depicted in the following simple diagram (see diagram).

Adverse labor conditions (1), among which correctable conditions (1.2) are of basic interest in light of the problem discussed, constitute the initial element in the system. These are in turn subdivided into established conditions (1.2.1) and those not established (1.2.2). The consequences of adverse labor conditions (2), which include diseases (including occupational diseases) and industrial injuries, make up the second element in the system. These consequences should also be subdivided into established conditions, as production conditions (2.1), and those not established (2.2). The third element in the system is the process of evaluating the state of the first two elements from the point of view of the nature and extent of the measures (3) required. The provision of incentives (4) is the next element. The role of this important element in the system of measures to improve labor conditions is defined by the nature of the correlations between the first three elements.

The Role of Incentives in the System of Measures to Improve Labor Conditions




Key:

1. Adverse labor conditions
2. Consequences of adverse labor conditions (diseases, injuries)
3. Not correctable
4. Correctable
5. Established
6. Not established
7. Evaluation
8. Provision of incentives
9. Enterprise personnel

Special attention should be given to the correlation between established and unestablished manifestations of the first two elements. This correlation can assume great importance for evaluating adverse labor conditions or their consequences from the point of view of economic incentives.

Of exceptional importance for providing economic incentives based on the consequences of adverse labor conditions (diseases and injuries) is the matter of whether these diseases or injuries have been established as the consequences of specific adverse labor conditions. However, the influence of the subjective factor cannot be ruled out when establishing such factors as diseases and injuries as industrially caused.

It is very important tc stress the fact that when the situation in production is evaluated for purposes of providing economic incentives on the basis of established diseases and injuries, that is, the consequences of adverse labor conditions, the practice itself may bring about a subjective approach by enterprise personnel in the establishment of such phenomena (see element 5 in Figure 1). An entire section may be deprived of a bonus as a result of an illness or injury, for example, and this creates conditions contributing to the concealment of its industrial origin. In other words, mechanisms come into play which are difficult to take into account and which counteract an objective evaluation of the link between a given illness or injury and production conditions.

In the case of adverse labor conditions which are the cause of illnesses, injuries and accidents, on the other hand, the matter of establishing such conditions cannot be the object of subjective evaluation, as a rule: faulty ventilation, the absence of protective barriers, the inefficient operation of various types of sanitary engineering devices and other similar violations are established on the basis of totally objective data.

Consequently, if the evaluation of production conditions is based not on the effects of adverse conditions but on the causes of possible events, that is, on established, correctable violations of the rules of industrial sanitation and safety engineering, the possibility that the providing of incentives will adversely effect the degree to which these violations are established is practically excluded. It follows from this that the system of economic incentives based "on causes" has major advantages over the system of providing incentives based "on consequences."

The Saratov System of Labor Safety Measures

The validity of the conclusion drawn is confirmed by factual data describing experience in the adoption of various systems of economic (material) and moral incentives for improving labor safety at various of the nation's enterprises.

In our opinion the Saratov system is the most effective of the numerous incentive forms and methods employed.

A system code-named "Organizing the Work with 100 Percent Observance of Safety Engineering Rules" was successfully used throughout the Eighth and Ninth Five-Year Plans at Saratov's "Nitron" production association of the USSR Ministry of the Chemical Industry, and is still being employed there. Under this system of control labor safety is combined with the provision of economic (material) incentives.

The Saratov system for improving labor safety calls for constant control and recording of work safety indices, that is, work performed without industrial injuries. The statute on bonuses contains 15 indicators, the realization of

which is designed to improve labor conditions and safety. They include the following: maintenance of production condition parameters; the fulfillment of instructions from inspecting services (the chief mechanic, the chief power engineer and so forth); the observance of sanitary standards for the condition of the air in production buildings; preventive maintenance; the execution of instructions from the labor safety inspector of the trade union, and so forth.[2]

Indicators and the results of the work of each collective are evaluated each month as an element of socialist competition. The observance of labor safety and safety engineering rules is taken into consideration. The financial interest of workers and engineering and technical personnel of the shops is covered in the Statute on Bonuses for Improving Labor Safety Out of the Material Incentive Fund.

A total of 10 to 12 percent of the material incentive fund is allocated for these purposes. The following amounts were paid out during the period 1972-1976:

| | | |
|---|---|---|
| 1972 | — | 150,200 rubles |
| 1974 | — | 156,600 rubles |
| 1975 | — | 155,700 rubles |
| 1976 | — | 160,000 rubles |

Bonuses out of the material incentive fund are calculated in the following amounts:

—for shop operation without accidents or industrial breakdowns for a month — one percent, the bonus increasing by one percent for each subsequent month of operation without accidents or industrial breakdowns, but by no more than 5 percent for shops in category I and no more than 3 percent for shops in category II;

—for shop operation without industrial accidents for a month — one percent. The bonus is increased by no more than 5 percent for each subsequent month of operation for shops in category I and by 3 percent for shops in category II.

For the overall indicator of the organization of labor safety and safety engineering work for each month:

| for category I shops | for category II shops |
|---|---|
| at 90% — 2% bonus | at 98% — 1% bonus |
| at 99% — 4% bonus | at 99% — 3% bonus |
| at 100% — 6% bonus | at 100% — 5% bonus |

The maximum bonus is 16 percent for category I shops and 11 percent for category II shops.

2. "Polozheniye ob organizatsii raboty po 100%-nomu soblyudeniyu pravil tekhniki bezopasnosti na Saratovskom khimicheskom kombinate" [Statute on Organizing Work with 100% Observance of Safety Rules at the Saratov Chemical Combine], Saratov, 1975, pp 10-11.

The above bonuses for each bonus indicator are added to bonuses for production plan fulfillment for a given shop for all workers, engineering and technical personnel. They are paid only if the shop fulfills the production plan. In addition to this there is also a Statute on Awarding the Title "Best Public Labor Safety Inspector" of a Shop, Production Unit, Combine (Association), which is directed toward the adoption of moral incentives based on the results of their work. The public labor safety inspector is awarded a certificate and a monetary prize out of the material incentive fund for the quarterly operation.

This system of operating with 100 percent observance of safety rules has become widespread at enterprises of the USSR Ministry of the Chemical Industry and other ministries. Each year they experience a reduction not only in the number of industrial injuries but also in the total sick-rate, the level of which is one of the lowest among industrial enterprises of Saratovskaya Oblast (an average of 9.06 days of absence per worker).

We know that the development of many accidents begins with violations of production-process regulations. Data for the "Nitron" association, however, show that observance of production-process regulations has risen from 94.8 to 96.2 percent in the past two years, and production-process parameters are maintained at 99-100 percent in individual shops.

The frequency coefficient for injuries taking place at the "Nitron" in 1965 was 7.9, dropping to 5.7-6.01 in 1969 and 70. It continued to drop during the period of introduction of the above-described labor safety system (1971-1975), reaching 3.9 in 1975. The number of individuals injured to the point of disability for four or more workdays dropped by 28 percent between 1971 and 1975. At the same time, we must stress the fact that further improvement of the methods used to combat existing deficiencies requires further improvement.

There had been two accidents (1971) in categories I and II when the new labor safety system was introduced, and there were no accidents at all in these categories between 1972 and 1975. Therein lies the progressive nature of the system of economic incentives employed for improving labor safety.

At the same time, experience has shown that it is totally inadequate to evaluate the state of work performed in the area of labor safety and safety engineering by the number of accidents or emergencies in one or another subunit alone. In reality it was sometimes the case that adverse situations suddenly arose in a shop which had operated for a lengthy period without accidents or emergencies, that the so-called smoothly functioning operation was purely a matter of coincidence. The following practice was therefore adopted at the "Nitron": if for the current month the state of labor safety in this or that shop, this or that section, is below the established level then the bonus paid to the heads of the corresponding subdivisions for plan fulfillment is reduced by 25 percent.

This association was the first among enterprises of the chemical and petrochemical industry to analyze the state of affairs with respect to safety engineering and their influence on production and to make extensive use of the payment of material incentives to shop collectives for observing safety rules and for operating without accidents or industrial injuries.

Unlike other systems the Saratov system provides for incentives not only for engineering and technical personnel and section heads but for the workers as well.

A distinction of this system lies in the fact that while the state of labor safety and safety engineering was formerly determined strictly according to the number of accidents, emergencies and production breakdowns in a shop or section for a specific period of time (ordinarily a quarter), that is, only the consequences of violations already committed were registered, the work performed in each production subdivision is now judged on the basis of fulfillment of specific indicators of the state of safety engineering and labor safety.

Such an economic approach made it possible to have reliable information at all times on any adverse situation in subdivisions of the "Nitron" association and to outline steps to eliminate shortcomings in the labor safety arrangement.

The reduction in the number of injuries at the "Nitron" also had a positive effect on a number of economic indicators. Personnel turnover was reduced, the amount of losses resulting from breakdowns dropped considerably, and labor productivity rose. The association systematically exceeds plan production assignments.

Experience has shown that economic incentives based on an evaluation of established violations of industrial sanitary rules and safety engineering produce good results. In the case of economic incentives based on recorded cases of illnesses and injuries, on the contrary, there is a tendency to conceal the industrial nature of injuries and illnesses, social-psychological tension builds up in the collective, and a situation is created which does not entirely correspond to the socialist society's moral principles.

All of this not only demonstrates the major advantages of one of the two possible methods of providing economic incentives for measures to improve working conditions, but also forces us to take a more demanding attitude toward the scientific application of these matters.

It should be pointed out in conclusion that the extensively used term "labor safety" does not totally reflect the nature of the work performed to improve its conditions. The application of modern achievements in labor hygiene, physiology and psychology, human-factors engineering and ergonomics makes it possible not only to resolve the problem of protecting the health and insuring the safety of the working man, but also to raise labor productivity,

to provide encouragement for the creative element in the work and to increase the individual's working life. It is difficult to embrace all of these elements with the concept "labor safety." They correspond more readily to the concept of optimization of labor conditions.

We still lack a center capable of working out methodological aspects of the economic problems involved in optimizing the labor conditions on a high scientific level. The creation of such a center would make it possible to coordinate studies on the provision of incentives for work performed in the area of optimizing labor conditions.



11499
CSO: 1823

## LABOR PRODUCTIVITY STATISTICS THROUGH 1977

Moscow EKONOMICHESKAYA GAZETA in Russian No 42, Oct 78 p 12

[Text] The productivity of social labor is among the basic indicators describing development of the socialist economy and production efficiency.

The level of social labor productivity is defined as the ratio of national income produced to the average annual number of workers employed in branches of material production.

Under socialist conditions, increasing social labor productivity is the basic factor in national income growth and in raising the material and cultural standards of living of the Soviet people, and it has been characterized by steady growth rates.

Over the first two years of the current five-year plan, social labor productivity has increased eight percent (1977 in percent of 1975). This growth was made possible by a significant savings in live labor in the leading branches of material production. Thus, labor productivity in industry increased seven percent in 1977 as compared with 1975, in the public sector of agriculture -- 16 percent, and in construction -- six percent.

Social labor productivity growth ensured an actual savings of the labor of 20 million people in the Ninth Five-Year Plan and has saved the labor of more than seven million people in 1976-77. The attainment of this economy has been a major victory of our socialist economy, and one which has acquired special significance given the country's strained labor resources balance.

Seventy-five percent of the increment in national income in 1976-77 was obtained through higher social labor productivity. During this same period, labor productivity growth provided 74 percent of the entire increment in industrial output, all the increment in agricultural output and construction-installation work.

Rates of Social Labor Productivity Growth (in percent of 1970)

| | |
|---|---|
| 1970 | 100 |
| 1971 | 104 |
| 1972 | 107 |
| 1973 | 115 |
| 1974 | 119 |
| 1975 | 124 |
| 1976 | 129 |
| 1977 | 134 |

Social labor productivity growth signifies not only a savings of live labor, but also a savings of embodied labor per unit of output. Therefore, the task of solving in a comprehensive manner the problem of using material, labor and financial resources most efficiently demands the intense scrutiny of workers at each enterprise, association and branch to questions of procedures for economizing on material means to the exact same extent as to increasing output.

11052
CSO: 1823

## UZBEK WORKING CONDITIONS SLOW TO IMPROVE

Tashkent PRAVDA VOSTOKA in Russian 22 Sep 78 p 3

[Article by K. Murtazayev, Chairman of the Uzbek SSR State Committee for Labor: "Life, Labor, Economy"]

[Text] The 21st article of the USSR Constitution stresses that "the state is concerned about improving working conditions and labor protection, about scientific labor organization, about reducing and subsequently completely eradicating heavy manual labor on the basis of overall mechanization and automation of production processes in all branches of the national economy."

In our society, the action of this law is manifested in the most diverse forms. Today, one can see how, simultaneously with improvement in the cultural-technical and general educational level of the workers, demands are increasing as to the substance and nature of labor, to production hazards.

Still, certain enterprise leaders continue to hope that this burning question can be resolved using the old methods of increasing wages for difficult jobs, of introducing special diets at hazardous sectors, and so forth. That is not true. Such problems must be solved on a qualitatively new basis, and it is our common task not to institute ever-newer benefits, but to fundamentally improve working conditions and reduce production hazards.

The republic has quite a few examples of the complete elimination of production hazards, thanks to the efforts of party and economic leaders in individual sectors; workers have been provided with locker rooms, and medical-sanitation services, workers' supply and nutrition problems are being solved correctly. There is generally no shortage of personnel at such enterprises.

To the examples. At the Yangiyerskiy Building Materials and Structures Combine, renovation aimed at improving working conditions is constant. Here, the amount of housing available is high; a 100-seat dispensary, two first aid stations which were visited by 7,900 persons last year, three feminine hygiene rooms, a Pioneer camp, three kindergartens and a round-the-clock recreation center have been created. In the space of a single year, 500

people -- nearly a third of the collective -- spent time at the recreation houses and sanatoria. Public catering is well organized at the combine; the cafeteria operates around the clock; people are brought to and from the work place; problems of vocational guidance and continued training for working youth are being solved skillfully. As a result, worker personnel turnover in 1977 did not exceed five percent.

And there are many such examples.

At the same time, it must be recognized that many reserves connected with improving production conditions remain unheeded.

Speaking about the necessity of increasing labor effectiveness and using working time efficiently, leaders most often try to eliminate obvious losses completely: intrashift and day-long idle time, absenteeism, nonappearance with administration permission, and so forth. They are astonishing. And the struggle against them must unquestionably be waged.

But there are also hidden reasons for lost time, reasons which are sometimes not taken into account but which surface when workers are forced to adapt to disorganization and confusion, which rule in individual enterprises.

There is one other reserve for increasing labor productivity -- production aesthetics. Thus, clean shop windows can increase a collective's productivity 5-8 percent; the result of a well chosen wall and equipment color combination is similar. And the introduction of functional music, a good microclimate in the collective, room furnishings which brighten the psychological atmosphere, opening a "Beauty Salon" for women workers.... All this and much more is capable of increasing the labor return, of improving workers' mood and general state.

This is why, when speaking about increasing working time effectiveness, special stress should be placed on improving working conditions.

Production working conditions are a complex social phenomenon which evolved under the impact of many interrelated factors which are socioeconomic, organizational and natural in character. Sociopsychological working conditions (level of education, worker skill, use of leading experience, development of technical creativity, microclimate in the collective) occupy an important place among them.

The ability to make a high-principled evaluation of each of these elements is an important part of work aimed at improving the production environment.

In this connection, the fact that working and living conditions are often in conflict with the high technical level of even newly built enterprises is disquieting. The Khivinskiy Rug Combine, for example, was put into operation without even dormitories, and young specialists were forced to wait for a long time, living in service areas.

The situation is no better at the Navoiyskiy Cement Combine, which does not have sufficient housing, kindergarten spaces or dispensaries. Similar shortcomings exist at many enterprises and organizations of the ministries of rural construction, cotton cleaning, light and local industry, the Uzglavvodstroy, Uzplodoovoshchvinprom and a number of others.

Economic organs, planning and construction organizations evidently need to build plants and factories with concern foremost for the people who will work there.

There are, unfortunately, many channels through which valuable working time is dissipated, and they are sometimes far from the plant or construction site, in the nonproductive sphere.

It has been estimated that the proportion of working time losses due to poorly thought out organization of housing, municipal, medical and trade service operation, passport office operation, and so forth, reaches 10-15 percent sometimes at individual enterprises. Or take public transport. Psychologists and economists have determined that each 5-10 minutes spent waiting for a bus so worsens a person's general state and mood that his ability to work is at its lowest ebb for an hour. And delay in his arriving at work leads to even worse labor indicators.

A course has been charted in the republic towards renovation and retooling. The rates of introduction of mechanized and automated flow lines and sectors are increasing. But still, the level of worker employment at manual labor in Uzbekistan industry is being reduced slowly, by only one percent every 2-3 years. Year by year, the proportion of women among workers in industry increases, but the level of mechanization of their labor is also still low.

In order to increase the role of renovation and retooling in increasing production efficiency and improving working conditions, the time has come to work out scientifically substantiated branch and territorial expenditure normatives for each forthcoming five-year plan, with a view towards increasing capital investments aimed at these goals.

At the suggestion of the Uzbek SSR Gosplan and State Committee for Labor, the republic Council of Ministers has directed ministries, departments, associations and enterprises to work out a comprehensive program, "Mechanizing Manual Labor in Uzbek SSR Industry in 1979-1980." It is now a matter of developing such enterprise programs in strict accord with the methods instructions and within the established time periods.

Speaking about sociopsychological conditions, let's deal with just the first half, that is, with the purely social working conditions.

In accordance with the resolutions of the 25th CPSU Congress, the entire system of vocational training is being improved in the republic. The network of vocational and technical schools is being expanded at an unprecedented

rate. Nonetheless, nearly 70 percent of the skilled workers are being trained on the job, and a majority of these are being trained individually. And, as a check made by the State Committee for Labor showed, worker training is of insufficiently high quality; ratings are frequently awarded without workers having taken full courses of theoretical and practical training. The advance training of new personnel in connection with production renovation and expansion is not always anticipated.

In our view, we must seriously take up expanding and specializing existing study combines, providing them with modern equipment, and improving instruction at them.

Speaking about personnel training, we all understand clearly that the reference is first of all to young people. Each year, about 160,000 young men and women enter production in our republic. At the same time, of each 100 workers dismissed at his own request, 65 are young people. This results in great economic and social damage -- young people not yet fully developed leave the production collective and do not put down roots anywhere, which negatively affects their own fates.

The problems of working conditions touched on in this article demand a serious approach to their solution. "To create for the working person conditions most favorable to his work, to developing his abilities and putting them to the best use," said Comrade L. I. Brezhnev, "-- this is the main goal, the primary meaning of the policy being implemented by our party."

The State Committee for Labor approaches its own work from these positions, inasmuch as it is responsible for implementing a unified state policy in the area of labor in the republic and has been entrusted with the functions of state supervision of manpower use and with creating favorable conditions for highly productive labor.

11052
CSO: 1873

MANPOWER: LABOR, EDUCATION, DEMOGRAPHY

REVIEW OF THE JOURNAL 'SOVETSKIYE PROFSOYUZY'

Moscow NOVISTY DAILY REVIEW in English 18 Oct 78 pp 1, 2

[Text] The issue's leading article, "Manifesto of the Epoch of Communist Construction," is dedicated to the first anniversary of the adoption of the new Soviet Constitution which was observed on October 7.

The new Constitution is an outstanding document of our time which codified the real achievements of developed socialist society on the road of tremendous revolutionary transformations and glorious victories, the article emphasises.

When determining the place of Soviet trade unions in the political system of the USSR, the Soviet Constitution clearly lays down that in accordance with their statutory purposes trade unions participate in the administration of state and public affairs and in the solution of political, economic, social and cultural questions, the article goes on.

More than 121 million people are trade union members in this country, while about 6,500,000 people have been elected members of the factory, plant and local trade union committees and auditing commissions, and trade union organizers. Having vast rights and material possibilities, Soviet trade unions occupy an important place in public life of this country. Their creative activities are constantly being expanded and deepened while the role they have to play in the drafting and implementation of state policy, in particular the drafting of socio-economic development plans and their implementation, grows. Trade unions have a no smaller role to play in the protection of the rights of workers, collective farmers and office employees.

Now that the Soviet Union has entered the second year of the new Constitution being in effect, the workers, collective farmers and the people's intelligentsia are patriotically-minded and are fully determined to ensure by their selfless shock work the fulfillment of the assignments of

the current Tenth Five-Year Plan period for the creation of the material and technical basis of communism, the moulding of a new man and the development of the socialist way of life, the article concludes.

"To Raise the Prestige of a Title" is the heading of M. Valitov's article on the twentieth anniversary of the movement for a communist attitude to work which was observed on October 13.

The movement for a communist attitude to work determines to a large degree the scope and content of socialist emulation, the author says. Statistics and numerous sociological studies show that participation in this movement has become a moral standard for a Soviet working man. In the current Tenth Five-Year Plan period 92 out of a hundred factory, professional, technical and office workers participate in it. The effectiveness of the emulation movement is growing: more than 30,000 million roubles' worth of industrial output was produced and marketed in the years of the Ninth Five-Year Plan period (1971-75), while five to six thousand million roubles' worth of output is produced every year in the current Tenth Five-Year Plan period.

In the article "The Main Direction" the chief of the labour protection department of the All-Union Central Council of Trade Unions A. Semenov deals with the problems of scientific and technical progress as the material basis for the improvement of work conditions.

The Communist Party of the Sov et Union has always viewed the improvement of labour conditions, mechanisation and automation of production, and the protection of the Soviet people's health as a major direction of its social policy and of the practical work of the economic organisations and trade unions, as an integral part of the socialist organisation of production, the author writes.

As a result of mechanisation and automation of production, A. Semenov emphasizes, over two million people doing arduous manual work have been given easier jobs and over 450 types and models of machines and technological equipment greatly improving labour conditions have been developed in the past five-year-plan period (1971-1975). About 500 research organisations, including 6 institutes of labour protection under the AUCCTU, 15 institutes of labour hygiene of the Ministry of Public Health, 14 sectoral institutes of safety engineering, 170 specialized research departments at sectoral research institutes, fitted out with most up-to-date research equipment, and labour protection departments at 250 schools of higher learning tackle the problems of work conditions and labour protection in the Soviet Union.

In the section "Communist Education" the journal carries articles and information on the new projects in the Tuymen region and on the work of the trade union organisations with the youth at the industrial plants of Udmurtia.

The issue also contains articles on socialist emulation among members of trade unions in various sectors of the national economy, on the everyday life, labour protection and social insurance of the Soviet working people, and other materials.

CSO: 1812

# TRANSPORTATION'S EFFECT ON NATIONAL ECONOMIC PLAN

Moscow IZVESTIYA AKADEMII NAUK SSSR SERIYA EKONOMICHESKAYA in Russian
No 5 Sep-Oct 78 pp 64-71

[Text] The article examines the character of the normative base of transportation as an industry and assesses the extent of its influence on the basic indicators of the development of the national economy. It determines the relative importance of the elements of the normative base and the direction of its perfection. The research is carried out on the basis of a large-scale aggregation optimization model of national economic planning.

In drawing up long-term plans for the development of the national economy, transportation is viewed in terms of two fundamental aspects: as a relatively isolated subsystem, in which the planned technical-economic indicators for the functioning and development of the various types of transportation and their interaction in a single transportation system are determined on the basis of exogenously determined requirements with regard to freight and passenger transportation; as one of the main elements of industrial and interindustrial calculations, on the basis of which the rates and proportions of the development of different sectors of the national economy, necessary capital investments, etc., are determined.

A rather large number of studies have been devoted to the optimization of the transportation system and its individual elements.* Much more weakly worked out are the problems of modelling the connections of transportation to other sectors of the national economy.

*Cf., for example, B. S. Kozin, The Periodic Development of Transportation Systems. M., "Transport," 1973; B. Yu. Levit, V. N. Livshits, Non-Linear Transportation Net Tasks. M., "Transport," 1972; E. I. Pozamantir, A Calculation of the Irregularity of Freight Transportation in the Planning of Transportation. M., "Transport," 1974, and others.

These connections are determined, on the one hand, by the requirements of all sectors of the national economy with regard to the transportation of their products, [and], on the other, by the production expenditures of other sectors in the sector "Transportation" for the realization of this transportation. The requirements for transportation and their growth in time set the dynamic of the development of transportation. The norm indicators of the expenditures of this sector, i. e., the coefficients of direct expenditures, the output-capital ratio and the labor-intensiveness, show what volume of production resources of all kinds society expends for transportation. The system of norm indicators of the sector "Transportation" and the coefficients, which determine the requirements of other sectors with regard to transportation, form its normative base.

As a concrete instrument of analysis we utilized the balanced-growth model which already earlier was applied in the study of the dynamics of the development of the national economy of [our] country and of individual union republics. This model permits an assessment in analytical form of the effect of small changes in the individual norm indicators of expenditures on such an important synthetic indicator as the growth rate of the national economy. For research into the effect of significant changes of norm indicators the path of carrying out variant calculations is more acceptable. The labor-intensiveness of such calculations on the basis of the balanced-growth model is not great and close to the labor-intensiveness of calculations of a static inter-sector balance, which is essential in conditions where the analysis of a large number of variants is necessary. At the same time, the results of such calculations are close to the results obtained on the basis of dynamic models, which reflect more fully the real processes of economic development. A detailed description of the model and the results of calculations based on it are given in the works of Yefimov and Movshovich.* The principles and assumptions on which the model is based are briefly examined below.

The model is a multi-sector model. It is designed for the determination of the maximum attainable growth rate of the national economy, as well as of the sector proportions and necessary capital investments corresponding to this growth rate. It is assumed that in every one of the sectors there is one kind of production output. The expenditures of the sector are proportional to the output, the volume of which is limited by the availability of production capacity. The composition of expenditures includes production expenditures of all sectors and labor expenditures. Proportionate expenditures are assumed to be constant over time--which, as various studies show, in the case of large-scale aggregate models does not lead to a substantial distortion

*Cf. M. N. Yefimov, S. M. Movshovich,"Analysis of Balanced Growth of a Dynamic Model of the National Economy," in the collection: Economics and Mathematical Methods, vol. IX, vyp. 1, M., 1973; S. M. Movshovich,'Main-Line Growth in Dynamic National Economic Models," ibid., vol. VIII, vyp. 2, M., 1972.

of sector proportions.* The maintenance of production capacity is realized by means of renovation, the expenditures for which are proportional to the capacities. The expansion of production takes place at the expense of the construction of new capacities, with the construction continuing for the duration of a number of years. Correspondingly, the expenditures of capital-generating products and the introduction of new capacities are distributed over time. Besides the production sphere, the model includes individual and social consumption, which are not further differentiated.

The basic system of limitations of the model arises from inequalities (their number is equal to the number of sectors), which reflect the fact that the expenditures of every kind of production cannot exceed the volume of its output. Moreover, the expenditures of production are composed of direct production expenditures, and expenditures for the renovation of existing and the construction of new production capacities and consumption.

The magnitude of direct production expenditures is determined by the matrix of inter-sector coefficients of direct expenditures and the vector of outputs, while the magnitude of expenditures for renovation is determined by the matrix of renovation expenditures and the vector of present capacities. Expenditures for the construction of new capacities depend on the matrix of increased capital-intensiveness and the vector of capacity increase. The volume of consumption is calculated proceeding from the assumption of the constancy of its structure and the norm of consumption per ruble of income by the population. Income is composed of wage payments in the production and non-production spheres and simple payments, with the income in the non-production sphere being assumed to be proportional to the wage payments of those employed in the sphere of production. The model of the national economy is closed in the sense that it utilizes only the products which it produces. It is further assumed that the growth of labor resources and the productivity of labor are sufficient to guarantee technologically attainable growth rates of production in conditions where the share of consumption in the national income is invariable over time and equal to its significance in the base year.

Given these assumptions, the relation between the norm indicators of direct expenditures, capital-intensiveness, growth rate and and sector structure is given by the equation:

$$x = Ax + \Gamma x + Cx + (\alpha - 1)\, F\, (\alpha)x, \qquad (1)$$

where x--is the vector of outputs of production by the sectors; A--the matrix of coefficients of proportionate direct expenditures; $\Gamma$ --the matrix of proportionate renovation expenditures; C--the matrix of coefficients determining the dependence of nonproduction consumption on the volume of out-

*A. P. Carter, Structural Change in the American Economy. Cambridge (Mass). Harvard University Press, 1970; J. Ozaki, Economics of Scale and Input-Output Coefficients. Proceed. of the 4th Intern. Conf. on Input-Output Techniques. 1968, v. 2; B. N. Vaccara, Changes over Time in Input-Output Coefficients for the United States, ibid.

put; F ($\alpha$)--the matrix of proportionate expenditures for the expansion of production (capital-intensiveness); $\alpha$ --the maximum attainable growth rate of the economy.

The equation (1) shows that the product produced utilizes for the needs of current production as direct expenditures--Ax, for renovation--$\Gamma$x, for the expansion of production--$(\alpha - 1)F(\alpha)x$ and for nonproduction consumption--Cx.

Moreover,

$$F(\alpha) = BR(\alpha), \qquad (2)$$

where B--is the matrix of coefficients of increased capital-intensiveness; $R(\alpha)$--the diagonal matrix of coefficients of the growth of proportionate capital investments with construction lasting for the duration of more than one year.

Varying one or the other of the parameters which go into the equations (1) and (2) and solving the system of equations to be received in this way, it is possible to determine the effect of corresponding variations on $\alpha$ and other characteristics of the plan. Such a direct approach was utilized in the experiments the results of which are reported below. Its virtue is the precise assessment of parameters by means of their direct calculation according to the model (1)--(2), as well as the possibility to research the effects of their variations within broad limits.

For a qualitative analysis of the changes which take place in the presence of small variations of the parameters, some simple formulas may be used which are deduced from the nonlinear model (1)--(2) with the help of its linearization.

Description of the Calculations Made and Their Analysis

The calculations were carried out on the basis of a 15-sector model which included the following sectors: metallurgy, fuel industry, electric power, machine building, chemical industry, timer, paper and wood processing industry, construction materials industry, light industry, food industry and other sectors of industrial production, construction, agriculture, transportation and communication, the sphere of turnover and other sectors of material production.

The following experimental calculations were carried out.

First of all, the effect of proportionate direct expenditures of production of all sectors on the sector "Transportation" (we designate it through $\alpha_{iT}$, $i = 1,\ldots, 15$) was determined.

Secondly, we studied the effect of proportionate expenditures of production of capital-generating sectors necessary for the development of transportation ($b_{iT}$, $i = 1,\ldots, 15$).

Thirdly, we have researched the effect of proportionate expenditures of various sectors for the payment of transportation labor ($\alpha_{iT}$, i = 1,..., 15). The variants with real norm indicators in 1965 and their projected values for 1975 were taken as basic. The remaining variants in each of three cases

(1) Влияние изменения нормативов на темп роста для 1965 г. Table 1

| θ | $\Delta\alpha_\theta$ при вариации величин (2) $a_{iT}$ | $\Delta\alpha_\theta$ при вариации величин (2) $a_{Ti}$ | $\Delta\alpha_\theta$ при вариации величин (2) $b_{iT}$ |
|---|---|---|---|
| 0,25 | 0,0082 | 0,0705 | 0,0131 |
| 0,50 | 0,0055 | 0,0453 | 0,0111 |
| 0,75 | 0,0027 | 0,0170 | 0,0039 |
| 1,00 | 0,0000 | 0,0000 | 0,0000 |
| 1,25 | —0,0027 | —0,0205 | —0,0035 |
| 1,50 | —0,0057 | —0,0399 | —0,0068 |
| 1,75 | —0,0127 | —0,0580 | —0,0105 |
| 2,00 | —0,0155 | —0,0756 | —0,0125 |

Key: 1) Effect of Change in the Norm Indicators on the Growth Rate for 1965
2) With variation of values

(1) Влияние изменения нормативов на темп роста для 1975 г. Table 2

| θ | $\Delta\alpha_\theta$ при вариации величин (2) $a_{iT}$ | $\Delta\alpha_\theta$ при вариации величин (2) $a_{Ti}$ | $\Delta\alpha_\theta$ при вариации величин (2) $b_{iT}$ |
|---|---|---|---|
| 0,25 | 0,0093 | 0,0619 | 0,0156 |
| 0,50 | 0,0060 | 0,0398 | 0,0099 |
| 0,75 | 0,0027 | 0,0193 | 0,0047 |
| 1,00 | 0,0000 | 0,0000 | 0,0000 |
| 1,25 | —0,0022 | —0,0176 | —0,0045 |
| 1,50 | —0,0065 | —0,0356 | —0,0084 |
| 1,75 | —0,0090 | —0,0520 | —0,0121 |
| 2,00 | —0,0131 | —0,0671 | —0,0213 |

Key: 1) Effect of Change in the Norm Indicators on the Growth Rate for 1975
2) With variation of values

were formed by the multiplication of all corresponding norm indicators (i. e., $\alpha_{iT}$, $b_{iT}$, and $\alpha_{Ti}$) by one and the same coefficient θ, which was changed within a limit from 0.25 to 2.0 (in steps equal to 0.25). Thereby the level of the norm indicators examined was changed proportionally in every variant. For example, taking θ = 2.0 in the first series of calculations signified that proportional expenditures in the sector "Transportation" of the production of all sectors doubled by comparison with the basic variants.

Of the greatest interest is the effect of similar changes on the value of the rate of balanced growth $\alpha$, close, as shown by studies conducted earlier*, to the growth rate of the aggregate gross product of the national economy. The

*Cf. Yefimov, Movshovich, op. cit.; Movshovich, op. cit.

results of these calculations showing this effect are given in Table 1 for 1965 and in Table 2 for 1975. Moreover, in the tables are given the values $\Delta \alpha = \alpha_\theta - \alpha_{\theta,1}$ with the isolated variation of the values $\alpha_{iT}$, $\alpha_{Ti}$, and $b_{iT}$.

It is natural that any increase or decrease of proportionate direct expenditures as well as of capital intensiveness leads to a corresponding decrease or increase of $\alpha$. However, of interest are the comparative assessments and above all the result obtained which is indicative of the great effect on the growth rate of of the expenditures of other sectors for the payment of transportation ($\alpha_{Ti}$) by comparison with expenditures in the sector "Transportation" itself ($\alpha_{iT}$).

Indeed, it is evident from Tables 3 and 4 that with a change in the coefficients $_{Ti}$ from the 25percent level to 200 percent ($\theta$ = 0.25 and $\theta$ = 2.0) the balanced growth rate changes substantially.

If we take as 1.0 the growth rate $\alpha$, which corresponds to the normal level of the coefficients $\alpha_{Ti}$, then with $\theta$ = 0.25 takes place: for 1965 $\tilde{\alpha}_{65}$=1.065* and for 1975-- $\tilde{\alpha}_{75}$ = 1.059. Thus, a decrease by 4 times of expenditures for the payment of transportation increases the balanced growth rate by 6-6.5 percent. Correspondingly, a twofold increase of the values $\alpha_{Ti}$ leads to the values $\tilde{\alpha}_{65}$ = 0.928 and $\tilde{\alpha}_{75}$ = 0.94.

The effect of the other parameters on the balanced growth rate is significantly less perceptible. Indeed, a variation within the same limits ($\theta$ = 0.25 -- 2.0) of the level of the coefficients $\alpha_{iT}$ and $b_{iT}$ results in a change of $\alpha_{65}$ and $\alpha_{75}$ of not more than 2 percent.

The great dependence of the growth rate $\alpha$ on expenditures for the payment of transportation and the relatively small dependence on expenditures in the sector "Transportation" is apparently explained by the great "transportation-intensiveness" of many sectors of the national economy and the small material-intensiveness of transportation.

Thus, for example, the share of the cost of transportation in the cost of a unit of production is composed as follows: for the construction materials industry--0.305, for the fuel industry--0.233, for the timber, paper and wood processing industry--0.144, while the share of current production expenditures of all sectors in the cost of the functioning of transportation is equal to only 0.204.

Somewhat unexpected is the small effect on the balanced growth of the level of increased capital-intensiveness $b_{iT}$. However, as the calculations show, this phenomenon is explained by the relatively small absolute values of the capital investments directed towards the development of transportation by comparison with the sums expended by other sectors for the payment of transportation services.

The second main indicator which is affected by a change in the proportionate

*See p 12 of translation

Table 3

(1) Оптимальная структура выпуска валовой продукции в 1975 г., %

(2) Таблица 3

| (3) Варианты исходных данных | (4) Металлургия | (5) Топливная промышленность | (6) Электроэнергетика | (7) Машиностроение | (8) Химическая промышленность | (9) Лесная, бумажная, деревообрабатывающая промышленность | (10) Промышленность стройматериалов | (11) Легкая промышленность | (12) Пищевая промышленность | (13) Прочие отрасли промышленного производства | (14) Строительство | (15) Сельское хозяйство | (16) Транспорт и связь | (17) Сфера обращения | (18) Прочие отрасли материального производства |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $a_{Ti} \times 0{,}25$ | 5,02 | 3,55 | 1,83 | 19,38 | 4,19 | 3,10 | 3,43 | 11,83 | 16,34 | 2,24 | 11,30 | 12,88 | 1,01 | 3,36 | 0,54 |
| $a_{Ti} \times 0{,}50$ | 4,87 | 3,71 | 1,85 | 18,72 | 4,18 | 3,05 | 3,22 | 12,00 | 16,62 | 2,24 | 10,54 | 13,08 | 1,99 | 3,39 | 0,54 |
| $a_{Ti} \times 0{,}75$ | 4,71 | 3,86 | 1,87 | 18,03 | 4,18 | 3,02 | 3,01 | 12,17 | 16,90 | 2,23 | 9,81 | 13,29 | 2,96 | 3,43 | 0,53 |
| $a_{Ti}$ | 4,56 | 4,01 | 1,89 | 17,33 | 4,17 | 2,99 | 2,82 | 12,33 | 17,16 | 2,23 | 9,11 | 13,49 | 3 92 | 3,46 | 0,53 |
| $a_{Ti} \times 1{,}25$ | 4,41 | 4,15 | 1,91 | 16,62 | 4,17 | 2,96 | 2,64 | 12,49 | 17,42 | 2,22 | 8,48 | 13,69 | 4,82 | 3,49 | 0,53 |
| $a_{Ti} \times 1{,}50$ | 4,25 | 4,31 | 1,93 | 15,86 | 4,16 | 2,93 | 2,46 | 12,66 | 17,69 | 2,22 | 7,81 | 13,90 | 5,78 | 3,52 | 0,52 |
| $a_{Ti} \times 1{,}75$ | 4,10 | 4,45 | 1,95 | 15,13 | 4,15 | 2,89 | 2,28 | 12,82 | 17,95 | 2,22 | 7,19 | 14,10 | 6,69 | 3,56 | 0,52 |
| $a_{Ti} \times 2{,}0$ | 3,95 | 4,60 | 1,96 | 14,36 | 4,14 | 2,88 | 2,11 | 12,98 | 18,22 | 2,22 | 6,58 | 14,30 | 7,59 | 3,59 | 0,52 |

Key: (1) Optimal Structure of Output of Gross Production in 1975, in % (2) Table 3
(3) Variants of initial data
(4) Metallurgy
(5) Fuel Industry
(6) Electric power industry
(7) Machine Building
(8) Chemical industry
(9) Timber, paper and wood processing industry
(10) Construction materials industry
(11) Light industry
(12) Food industry
(13) Other sectors of industrial production
(14) Construction
(15) Agriculture
(16) Transportation and Communication
(17) Sphere of turnover
(18) Other sectors of material production

Table 4

(1) Оптимальная структура капитальных вложений в 1975 г., %

(2) Таблица 4

| (3) Варианты исходных данных | (4) Металлургия | (5) Топливная промышленность | (6) Электроэнергетика | (7) Машиностроение | (8) Химическая промышленность | (9) Лесная, бумажная, деревообрабатывающая промышленность | (10) Промышленность стройматериалов | (11) Легкая промышленность | (12) Пищевая промышленность | (13) Прочие отрасли промышленного производства | (14) Строительство | (15) Сельское хозяйство | (16) Транспорт и связь | (17) Сфера обращения | (18) Прочие отрасли материального производства |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $a_{Ti} \times 0,25$ | 9,35 | 6,98 | 10,32 | 14,97 | 5,88 | 3,16 | 3,68 | 2,47 | 4,55 | 2,80 | 4,84 | 19,31 | 6,31 | 5,28 | 0 |
| $a_{Ti} \times 0,5$ | 8,72 | 6,83 | 9,67 | 13,58 | 5,52 | 2,94 | 3,25 | 2,36 | 4,38 | 2,73 | 4,33 | 18,79 | 11,79 | 5,11 | 0 |
| $a_{Ti} \times 0,75$ | 8,05 | 6,70 | 9,10 | 12,34 | 5,22 | 2,75 | 2,88 | 2,26 | 4,23 | 2,57 | 3,87 | 18,33 | 16,74 | 4,96 | 0 |
| $a_{Ti}$ | 7,50 | 6,58 | 8,60 | 11,23 | 4,93 | 2,58 | 2,55 | 2,18 | 4,10 | 2,44 | 3,46 | 17,92 | 21,11 | 4,82 | 0 |
| $a_{Ti} \times 1,25$ | 7,00 | 6,48 | 8,17 | 10,26 | 4,70 | 2,44 | 2,28 | 2,11 | 3,99 | 2,32 | 3,09 | 17,59 | 24,87 | 4,70 | 0 |
| $a_{Ti} \times 1,5$ | 6,53 | 6,38 | 7,75 | 9,30 | 4,47 | 2,30 | 2,02 | 2,04 | 3,87 | 2,21 | 2,77 | 17,22 | 28,56 | 4,58 | 0 |
| $a_{Ti} \times 1,75$ | 6,10 | 6,28 | 7,40 | 8,46 | 4,27 | 2,17 | 1,80 | 1,98 | 3,77 | 2,09 | 2,48 | 16,95 | 31,77 | 44,80 | 0 |
| $a_{Ti} \times 2$ | 5,69 | 6,21 | 7,08 | 7,69 | 4,10 | 2,08 | 1,61 | 1,91 | 3,69 | 1,99 | 2,17 | 16,68 | 34,71 | 4,39 | 0 |

Key: (1) Optimal Structure of Capital Investments in 1975, in % (2) Table 4
(3) Variants of Basic Data
(4) Metallurgy
(5) Fuel Industry
(6) Electric power industry
(7) Machine Building
(8) Chemical industry
(9) Timber, paper and wood processing industry
(10) Construction materials industry
(11) Light industry
(12) Food industry
(13) Other sectors of industrial production
(14) Construction
(15) Agriculture
(16) Transportation and Communication
(17) Sphere of turnover
(18) Other sectors of material production

Table 5

(1) Векторы неймановских цен (2) Таблица 5

| № | (3) Отрасли народного хозяйства | (4) Неймановские цены | |
|---|---|---|---|
| | | 1965 г. | 1975 г. |
| 1 | Металлургия (5) | 1,19 | 1,08 |
| 2 | Топливная промышленность (6) | 1,21 | 1,22 |
| 3 | Электроэнергетика (7) | 0,97 | 0,97 |
| 4 | Машиностроение (8) | 0,99 | 0,91 |
| 5 | Химическая промышленность (9) | 0,92 | 0,91 |
| 6 | Лесная, бумажная и деревообрабатывающая промышленность (10) | 1,24 | 1,27 |
| 7 | Промышленность стройматериалов (11) | 1,33 | 1,32 |
| 8 | Легкая промышленность (12) | 0,66 | 0,73 |
| 9 | Пищевая промышленность (13) | 0,81 | 0,82 |
| 10 | Прочие отрасли промышленного производства (14) | 0,79 | 0,81 |
| 11 | Строительство (15) | 1,05 | 1,12 |
| 12 | Сельское хозяйство (16) | 1,14 | 1,10 |
| 13 | Транспорт и связь (17) | 1,69 | 1,78 |
| 14 | Сфера обращения (18) | 0,91 | 1,14 |
| 15 | Прочие отрасли материального производства (19) | 0,58 | 0,91 |

Key: (1) Vectors of Neumann prices (2) Table 5
(3) Sectors of the national economy
(4) Neumann prices
(5) Metallurgy
(6) Fuel industry
(7) Electric power
(8) Machine building
(9) Chemical industry
(10) Timber, paper and wood processing industry
(11) Construction materials industry
(12) Light industry
(13) Food industry
(14) Other sectors of industrial production
(15) Construction
(16) Agriculture
(17) Transport and Communication
(18) Sphere of turnover
(19) Other sectors of material production

expenditures for transportation is the optimal sector structure of the national economy.

The analysis of the results of its calculation showed that the character of the effect of the basic norm indicators on the sector structure is the same as on the growth rate of the economy, i. e., variations in the coefficients $a_{Ti}$ have a strong effect, in $a_{iT}$ and $b_{iT}$ a weak effect.

(2) Таблица 6

(1) Сравнение результатов расчетов по приближенной формуле (3) и по модели (для 1965 г.)

| $\Delta\alpha$ | θ | 0,25 | 0,50 | 0,75 | 0,90 | 0,95 | 1,00 | 1,05 | 1,10 | 1,25 | 1,50 | 1,75 | 2,00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| По формуле (3) | | 0,0690 | 0,0460 | 0,0230 | 0,0092 | 0,0046 | 0 | −0,0046 | −0,0092 | −0,0230 | −0,0460 | −0,0690 | −0,0920 |
| По модели (4) | | 0,0705 | 0,0443 | 0,0219 | 0,0086 | 0,0043 | 0 | −0,0043 | −0,0086 | −0,0205 | −0,0399 | −0,0520 | −0,0756 |

Key: (1) Comparison of the Results of Calculations Based on the Rough Formula (3) and on the Model (for 1965)

(2) Table 6

(3) According to the formula

(4) According to the model

This is illustrated by data presented in Table 3, where the values of gross outputs of individual sectors are indicated in percent for 1975 with a change in the value of $\alpha_{Ti}$ from 25 to 200 percent of their normal level. Meanwhile a monotonous change takes place for all sectors--the rapid growth of the independent weight of transportation, a fall in the share of construction, metallurgy, machine building and the construction materials industry, as well as small changes in the remaining sectors.

The optimal structure of capital investments is sharply affected by variations in all of the norm indicators ($\alpha_{Ti}$, $b_{iT}$, $a_{iT}$); however, the order of the comparative importance of this effect remains the same. One can draw conclusions about the level of these changes on the basis of the data in Table 4, which is analogous in character to Table 3, but constructed in conformity with the analysis of the optimal structure of capital investments according to sectors (in percent) with variation of the coefficients $\alpha_{Ti}$. With the increase of θ the share of transportation grows monotonously (at a rate which is somewhat slower than the growth of θ), while the share of the remaining sectors decreases monotonously. The effect of changing the coefficients $b_{iT}$ is analogous.

The results cited above relate to cases in which the coefficients $\alpha_{iT}$ or $b_{iT}$ or $\alpha_{Ti}$ were treated as isolated variables. The calculations showed that in the case of their joint variation the qualitative character of the changes may be obtained by means of the superposition of individual effects.

## Simplified Formulas for the Analysis of the Effects of Small Variations of Parameters

The effect of small variations in the parameters may be shown with the aid of simplified rough formulas, the calculations with which may be made by hand. These formulas

are obtained in the following way.

In changing the elements of the matrix of direct expenditures, i. e., in crossing over from Matrix A to matrix A $+\Delta A$, the sector structure changes and will be equal to $x + \Delta x$. The growth rate also changes. It will be equal to $a + \Delta a$.

Let us note that vector X, which satisfies equation (1), is the right proper vector of the matrix $[A + \Gamma + C + (a - 1)F(a)]$ with the proper value equal to 1. To this proper value corresponds the left proper vector p, called the Neyman vector of prices. Disregarding the members, [which are] small in comparison with $\Delta A$, and having utilized the properties of the proper vector p, one can obtain from equation (1) through a simple transformation:

$$\Delta = \frac{p \Delta A x}{p[(a - 1) F (a)]' x}, \tag{3}$$

where $[(a - 1) F (a)]'$ is the derivative based on $a$ from the matrix $[(a - 1) F (a)]$.

By changing the elements of the matrix of capital-intensiveness one may obtain in an analogous way:

$$\Delta a = - (a - 1) \frac{p \Delta B x}{p[(a - 1) F (a)]' x}. \tag{4}$$

Calculations with formula (3) and (4) require information about vectors x and p. Numerous calculations show that vector x is close to the sector structure of the base year. As far as the vector of Neumann prices p is concerned, its elements deviate noticeably from the value 1 even if all elements of expenditures in price form are given.

The values of component vector p in the 15-sector cross-section based on data for 1965 and 1975 are presented in Table 5. In Table 6 the results of calculations based on Formula (3) in comparison with analogous results of variant calculations on the basis of the model are presented. The values presented confirm that in the case of small variations the results of calculations based on the rough formula are close to the corresponding results based on the model.

* * *

The research that was carried out and the experimental calculations that were made allow us to draw the following conclusions:

1. Norm indicator information concerning transportation exerts an exceedingly substantial effect on the most important indicators of the national

economic plan: the growth rate of the economy, the optimal sector structure, and the structure of capital investments.

2. At the present time, the norm indicator information on transportation is still far from meeting fully the requirements which follow from its use in long-term planning in valuable, large-scale aggregate, inter-sector models of long-term planning, since the existing methods for the formation of this information do not guarantee the necessary preciseness in the determination of norm indicators. Apparently, for the use of norm indicators in inter-sector calculations the combination of the methods of extrapolation of time series and expert estimates, usually used for the determination of these norm indicators, is inadequate.

3. The perfection of the norm indicator base for transportation will ensure the more effective optimization of the proportions of development of various sectors and will raise the validity of demands for the volume of transportation production, for dimensions of capital investments allotted to its development, etc. The established dependencies of the stationary optimal trajectory of the development of the national economy from the level of expenditures of (and for) transportation may be utilized for the more effective planning of proportions and the material guarantee of the agreed development of the various sectors.

4. The greatest effect on the basic economic characteristics of the national economic plan (growth rates of the economy, volumes and structure of the output of gross production by sectors, the distribution of capital investments by sectors, necessary increases in capacities, etc.) among the norm indicators of the sector "Transportation" is exerted by elements of its line in the matrix of coefficients of independent direct expenditures. Therefore, it is expedient to begin the perfection of norm indicators on transportation with the more precise definition of these very indicators.

---

* [Note to p 6]: The value of the relative growth rate $\tilde{a}_{65}$ is determined for $\theta = 0.25$ in the following way:

$$\tilde{a}_{65} = \frac{a_{\theta = 0.25}}{a_{\theta = 1}};$$ since, according to the calculations, for 1965 $a_{\theta = 1} = 1{,}076$ and $\Delta a_{\theta} = 0.0705$, then for $\theta = 0.25$ $\tilde{a}_{65} = \frac{1{,}076 + 0.0705}{1{,}076}$ = 1,065.



8970
CSO: 1823

## EXPANSION OF MOSCOW METRO SERVICE

Moscow GUDOK in Russian 14 Jul 78 p 4

[Article by A. Skorobogatov: "The Riga Radius"]

[Text] "'VDNKh' station! The train will go no further. Please leave the cars," announces the train station announcer.

Over a period of many years passengers traveling from the center of Moscow to its northernmost Babushkinskiy Rayon get off the metro trains directly at the central entrance to the main exhibition of the country. The tracks of the Kaluga-Riga Line -- one of seven main underground lines of the capital -- are interrupted here. But this is only for the time being. At the beginning of October passengers traveling toward Babushkinskiy Rayon will not have to transfer at "VDNKh" Station from metro expresses to buses and trolleys. Yet another section of the Kaluga-Riga Line, a continuation of it -- the Riga Radius -- is being opened up. Tunnel-driving operations have already been completed on the route, welding the rails of the "velvet path" is being completed and the stations and entrances are being covered in granite and marble.

We descend underground with the regional engineer of the production department of the Moscow Metro Construction Administration Yevgeniy Sergeyevich Komlev. The granite staircase leads us to "Babushkinskaya" Station. It is located on the boundary of the last run of the 8-kilometer route of the starting metro line.

Yevgeniy Sergeyevich Komlev constructed "Kolkhoznaya" Station, laid the tracks in the tunnels of several runs, carried on his studies without interruption from production and obtained a diploma of metro construction specialist. And he is now transferring to others his knowledge and 17 years experience as tunneler and track specialist. "Babushkinskaya" is an original engineering construction. Only 3 of the 103 presently operating metro stations in the capital are similar to it. Its island platform stretches in a wide granite belt under a high oval dome. The labor of protective whitewash has not yet been washed from the marble facing of the walls, but this does not interfere with one's falling in love with the newly constructed

station. It is really an underground palace! And it will become even more beautiful when its interior is painted in unique panels which reflect the heroics of developing the Arctic by Soviet polar fliers. M. S. Babushkin, after whom the station is named, is related to their glorious pleiad.


Question: How long does it take for passengers to make the trip along the Riga Radius metro from "VDNKh" Station to "Medvedkovo" Station, K. Petrova, resident of Medvedkovo Rayon. Answer: 10 minutes!, chief engineer of the traffic service of the Moscow Metro V. Korovin

KEY:

1. Medvedkovo
2. Babushkinskaya
3. Metro depot
4. Sviblovo
5. Botanical Garden
6. VDNKh
7. Prospekt Mira
8. Ring line

Underground kilometers! The trains will cover the route of Riga Radius in only several minutes. But years of persistent, intensive labor were required to open up the road to them. For example, it was not so simple to "ford" the Yauza River twice. Navigable at one time, being included in the water system leading "from the Varangians to the Greeks," this river long ago lost its past significance. But the "memory" of it remained. The tunnelers had to overcome the old river floodplain "filled" with quicksand, on the first "VDNKh"- Botanical Garden run. They froze and created under the river-bed an ice-soil slab and drove tunneling machines under its protection. In the second case the Yauza River was diverted to a new reinforced concrete bed and tunnels were installed above it.

The builders employed yet another engineering innovation at the approaches to "Botanical Garden" Station. At this point the route is partitioned by the high embankment of the line of the District Department of the Moscow Railroad. The builders drove two tunnels in order not to impede train

traffic. Special units equipped with powerful hydraulic jacks drove cast iron tubing rings into the soil. The soil was removed from the bottoms as they moved forward and other rings were attached one after the other to the front rings. Thus passages appeared above the embankment.

The northernmost "Medvedkovo" Station on the Moscow Metro has already been covered with granite and marble almost 2 kilometers from the "Babushkinskaya" Metro Station. The architectural formulation of this final terminal of the Riga Radius is also devoted to the heroics of conquering the Arctic. Fifty or more columns faced in blue marble like ice and walls which simulate hummock crystals all impart a unique coloring to the station with which the endless expanses of the "white silence" region are distinguished.

"All work will be completed at the station in the next few days," the chief of the section of the Construction-Installation Administration No. 11 Vladimir Maksimovich Ryabenko told me. "This is due to the great efforts of Viktor Rusanov's tunneling brigade, Mikhail Yegorkin's installer-fitters and the marble workers-finishers headed by Vasiliy Stepanovich Korenkov."

But not only these people deserve heartfelt gratitude of the passengers when the trains travel on the new line. Hundreds of builders have earned glory in driving the tunnels and in constructing the remaining two stations: "Botannical Garden" and "Sviblovo." Motifs evoked by scenes of nature are found in the architectural fact of the first of them. The second is painted in the coats of arms of the old Russian cities of Yaroslavl', Murom, Zagorsk, Uglich, Rostov Velikiy and others.

The start of the first test train is planned in August and opening of regular passenger traffic is planned in October.

6521
CSO: 1823

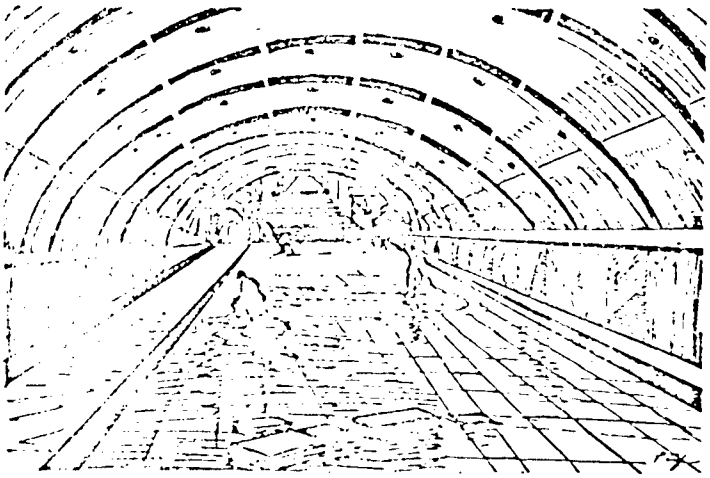
TRANSPORTATION

KHAR'KOV METRO CONSTRUCTION

Moscow NEDELYA in Russian No 7, 13-19 Feb 78 p 5

[Article]

[Text] The builders will turn over for operation a new section of the Khar'kov Metro with the "Komsomol'skaya," "Sovetskaya Armiya," "Proletarskaya," "Industrial'naya" and "Traktornyy Zavod" stations (this is the station in the figure) by 23 August 1978 -- by the 35th anniversary of the liberation of Khar'kov from the Fascist occupiers.



6521
CSO: 1823

## MOSCOW METRO CONSTRUCTION

Moscow NEDELYA in Russian No 38, 19-25 Sep 77 p 4

[Article]

[Text] The Serpukhov Radius, a project which was developed at the Metrogiprotrans Institute [State Planning and Surveying Institute for the Construction of Subways and Transportation Facilities], will link in a single line the north and south of the capital, Bibirevo and Krasnyy Stroitel'. This is what the chief engineer of the project Ye. I. Kupryenko told NEDELYA reporter S. Vurgaft:

"Eight stations will be located on 18 kilometers of track. And you note that three single-domed stations -- "Danilovskaya," "Nakhimovskaya" and "Dnepropetrovskaya" -- will be erected for the first time on the same radius; they will not have columns as let us say at "Airport" Station. A self-moving sidewalk will deliver passengers to the trains of "Danilovskaya" Metro Station."

"Here is one more detail. The station is being constructed by an individual project rather than a standard project in the experimental Chertanovo region."

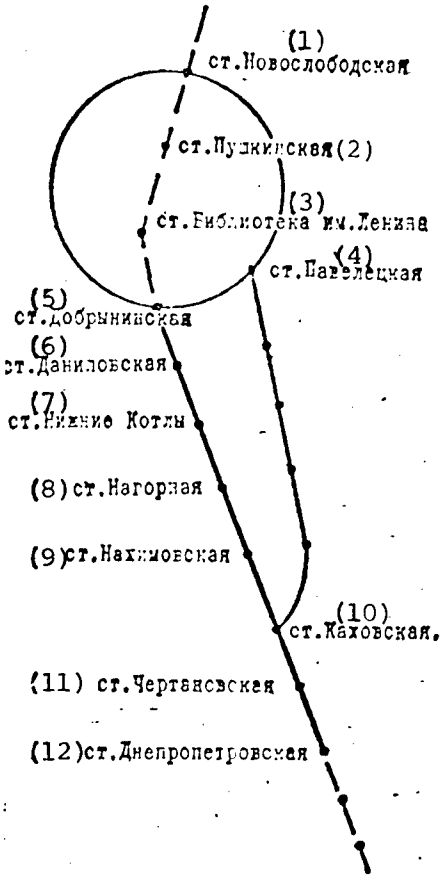



Figure: future lines of the Moscow Metro. The solid fat line denotes the section under construction and the dashed line denotes future sections

KEY:

1. Novoslobodskaya Station
2. Pushkinskaya Station
3. Library imeni Lenin Station
4. Paveletskaya Station
5. Dobryninskaya Station
6. Danilovskaya Station
7. Nizhniye Kotly Station
8. Nagornaya Station
9. Nakhimovskaya Station
10. Kakhovskaya Station
11. Chertanovskaya Station
12. Dnepropetrovskaya Station

6521
CSO: 1823

# CONCEPTS OF MODERN SAILING SHIPS

Moscow MORSKOY FLOT in Russian No 9, 1978 pp 51-55

[Article by I. Peretyuk: "The Return of Sail?"]

[Text] The vast practical and theoretical experience accumulated during several thousand years in the use of wind energy for the propulsion of ships and for driving machinery has made possible the creation of effective designs for sailing ships. However, despite the constant improvement of sailing ships (in the invention of the fore-and-aft rig and the use of deck machinery), the lack of mechanization of labor-intensive work, the impossibility of using modern cargo handling means, the inadequate efficiency of the rigging, the dependence on meteorological conditions, poor maneuverability, complexity of control and so on--all this contributed to the proliferation of ships with mechanical engines.

Sail, which once occupied such an important place in the history of civilization, now is used only for training, sport and tourism.

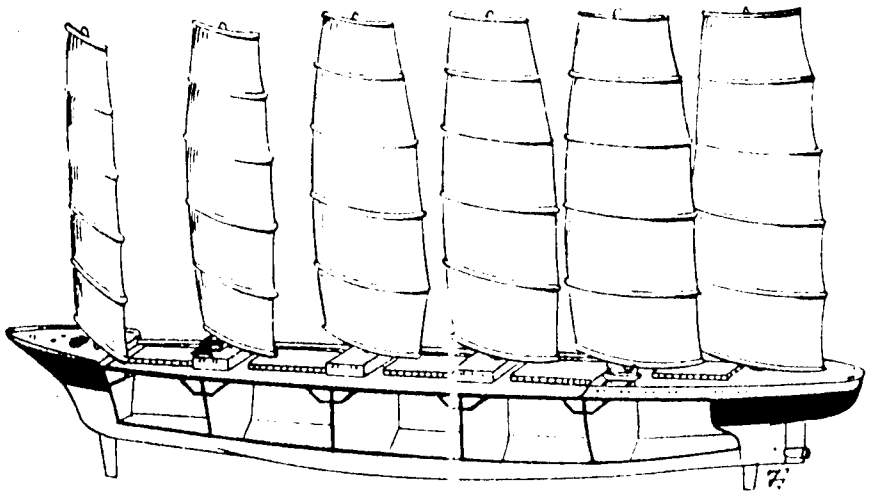
At present oil is the basic source of energy for transport. For various reasons, coal, gas, nuclear power, electricity and hydrogen are little used for this purpose now. Oil is the most convenient form of energy; however, its cost is continually rising while supplies are diminishing. Therefore, to save fuel, many transport ships are compelled to reduce speeds to levels which are comparable to the average speeds of sailing ships. Under these conditions the use of wind energy for the propulsion of transport ships, scientific research ships and several other kinds of ships becomes quite practicable.

Thus, sail again is attracting attention as a means not only of saving fuel, but also of conserving the environment. In fact, sail is the simplest and most ecologically clean propulsor. Certainly it is difficult to expect that the sailing ship of the past with pyramids of sails wrapped in a cobweb of rigging will appear in a modern port. Despite its many merits, such a ship has the series of substantial deficiencies already mentioned. But with future modernization the basis of recent achievements of science and technology, sail again may find application.

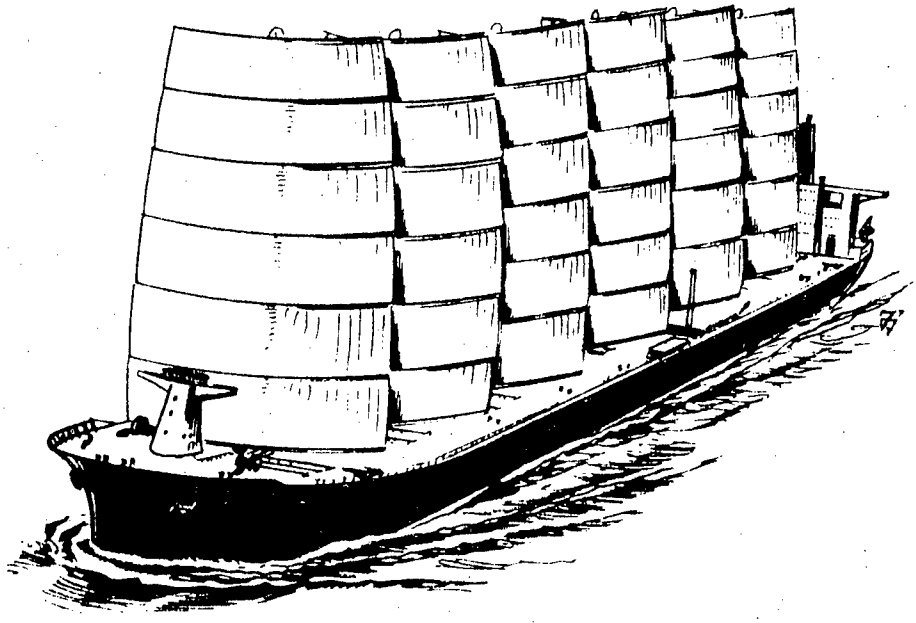
Two approaches exist for the use of wind energy in shipping. The first and more straightforward are those designs in which wind propulsion is an auxiliary means intended for use under favorable conditions to conserve fuel. The second approach concerns those designs in which wind propulsion is the basic means of propulsion and is used not less than three-fourths of the time in a voyage. In both cases well-known, accepted types of rigs and newly developed types are used.

The use of wind propulsion as an auxiliary means on ships with mechanical engines has been known for 100 years. Various types of sail rigs were used most frequently for this. But two ships equipped with Fletner rotors are also known. With the perfection of engines, however, the advantages of the use of sails for a significant proportion of ships declined, and rotors generally turned out to be unsuitable for widespread application.

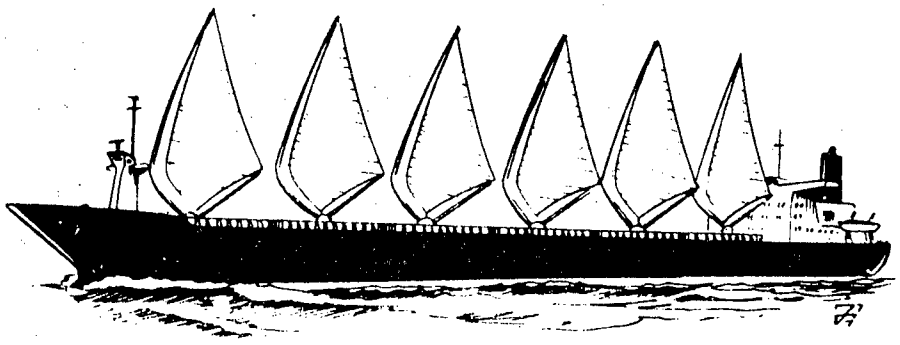
Nevertheless, in our time careful study of traffic volume and achievements in meteorology enable several investigators to consider the equipping of ships with auxiliary wind propulsion as quite practicable. Thus the Englishman /D. Vinn/ came to the conclusion that a rig of the "Dinarig" type, despite a considerable increase in the cost of the ship, fully justified itself on a 220,000 ton deadweight tanker. Fitted with six 75-meter-high masts and 40-meter-long yard arms, the tanker will have an advantage in comparison with a conventional ship on a shipping line from Europe to the Persian Gulf, even though the length of the voyage is increased up to 5000 kilometers. In a sharp beam wind the speed is only 8 knots. The economic efficiency of such a tanker will be 20 percent higher than for a conventional ship.



"Dnashif" by /V. Prols/ - one of the most thoroughly completed designs.



Large tanker of the VLCC class with "Dinarig"



Bulk Carrier with demountable rig ("gull wing" type)

The noted yacht designer /K. Myudi/ proposes to use a removable rig mounted on seatings on each ship, depending on the proposed areas of navigation. Individual units or modules, manufactured at plants, could be stored in warehouses in ports and issued as ordinary ships' supplies. Proposed as modules are: Fletner rotors, lattices of sails, wind driven propellers and sails of the "Gull Wing" type. The latter are the most practical, particularly because they may be easily stowed on deck.

As an auxiliary means, wind propulsion can yield a considerable benefit even when following the usual courses recommended for ships with mechanical engines and without taking into account weather charts and currents. But on account of the complexity of operation, psychological barriers, and the sharp impairment of the field of view, such ships will scarcely win widespread distribution.

The most promising, in my opinion, are sailing ships using wind propulsors as the principal means of propulsion. Provisionally, such ships may be divided into two groups depending on the type of rig--the traditional (as a rule, fore-and-aft) rig and newly developed rigs. Among the latter are such types as the "Dinarig" (designed by the German engineer V. Prols), the wing sail, the Fletner rotor, the wind driven propeller, the Korbelini sail, the pyramidal sail and others. The majority of ships are designed without bowsprits which improves safety during maneuvers.

One of the first designs in which a fore-and-aft rig was used was the sailing ship of the noted designer of motor and sailing ships, Uffa Fox. As far back as 1935 he proposed to construct a three masted schooner 167 meters long with 114-meter-high masts and a sail area of 10,500 meters in order to win the "Blue Ribbon" which was just then passing to the liner "Normandy." Even at that time this seemed practical.

In the post war period many different designs of sailing cargo ships were proposed, and a multiplicity of sailing cruise and training ships were built.

To assure the profitability of sailing cargo ships is complicated. The Pacific Ocean is considered promising for a sail powered shipping line. It was on this that the American, /Kh. Lourens/, considered expedient the construction and operation of a four-masted schooner with a length of 96 meters, a deadweight of 4537 tons (on a displacement of 5887 tons), and a 3500-square-meter sail area. The sails are suspended on L-shaped masts, upon which, additional sails may be hoisted when necessary. A 600-horsepower engine is intended for use in a calm and in narrow passages.

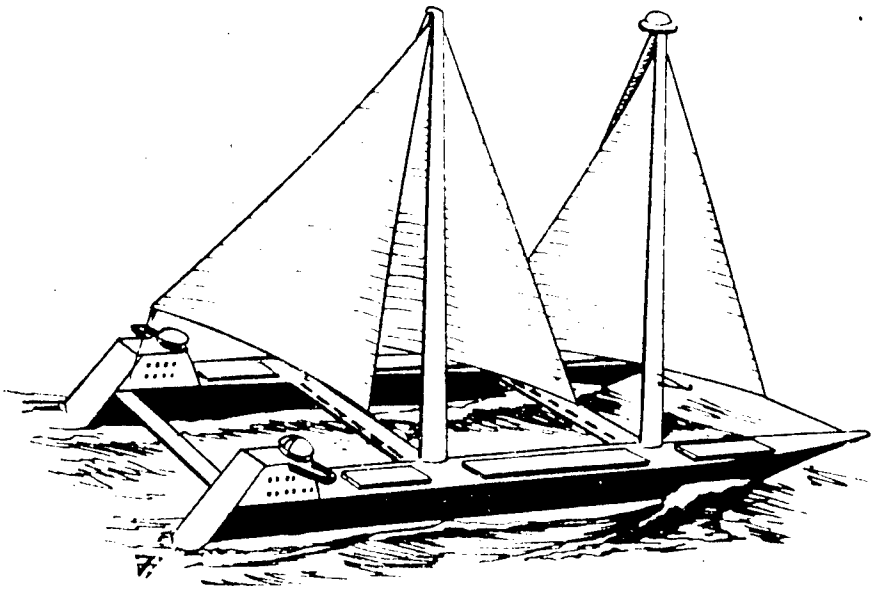
The Australian designer /U. Khud/ considers that to serve the region from Australia to West Samoa, even without a return cargo, a sailing ship with a length of about 90 meters will be profitable. Its average speed will be 12.5 knots which is not different from the speed of motorships in that region. Besides the transport of cargo, the training of students is envisaged. To assure maneuverability and for changing tacks a thruster is installed in the bow.

According to the opinion of /Mak-Lir/, the noted designer of cruising catamarans, the sailing ship of the future is a giant, 214-meter catamaran which will have a speed of 42 knots. The 150-meter-high L-shaped masts permit carrying an efficient staysail rig. The hulls are connected by tunnel passageways at the location of the masts. The design of the ship and the upper decks permit using the best methods of loading. The auxiliary engines are designed to provide a speed of 20 knots. Basically, such a catamaran amounts to two connected cruisers, the problems of the design and construction of which were solved long ago. Nevertheless, the author of the project considers a preliminary verification by the operation of a 60-meter long prototype necessary.

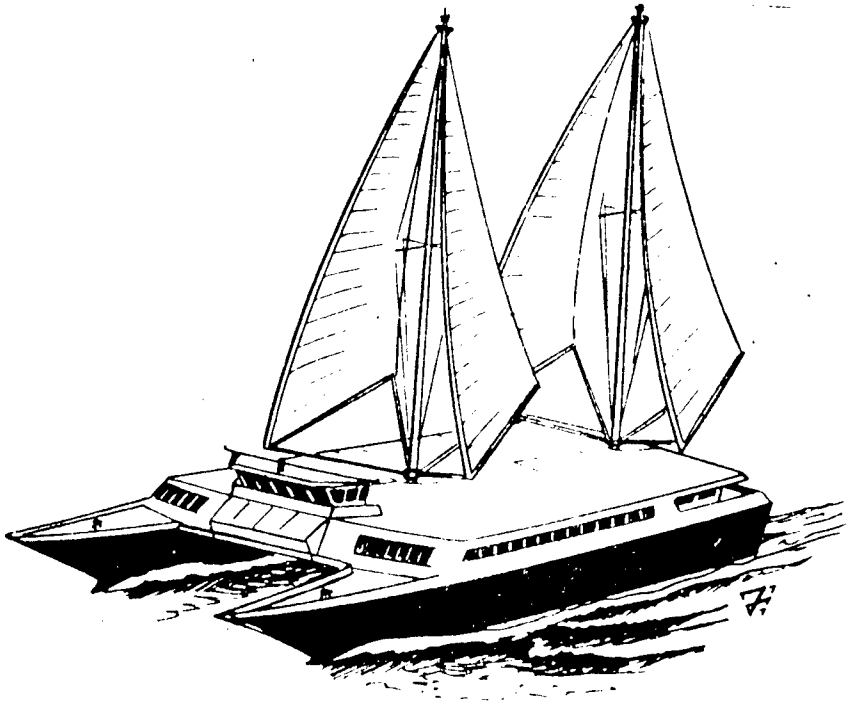
In all the referred to designs, modern levels of mechanization, navigating equipment and comfort are envisaged.

The problem of increasing the efficiency of the rig and automating the control of the sails continues to be the principal theme of research. The Frenchman, /E. Leruzh/ proposes to organize a ferry service across La Manche [The English Channel] with a sailing catamaran having a pyramidal rig which is distinguished by: a low center of sail area, good balance, the possibility of placing the sails in a luffed position with the ship on any course, smaller heeling moment and less yawing on course. Such a catamaran, having a length of 44 meters with 235 passengers and 35 automobiles, will run in a beam wind practically all the time, achieving 25 knots in a force 5 wind.

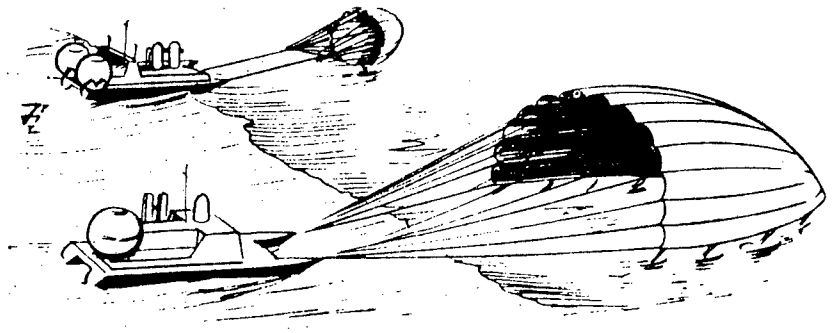
In order to increase the efficiency of sails, the Italian, Korbelini, proposed making them from specially shaped strips connected together. This theoretically provides the optimum flow around each element over a wide range of angles of attack. The sail is reefed by rolling it onto a spar. The first tests gave encouraging results allowing Korbelini to commence negotiations for the construction of a large cargo ship.



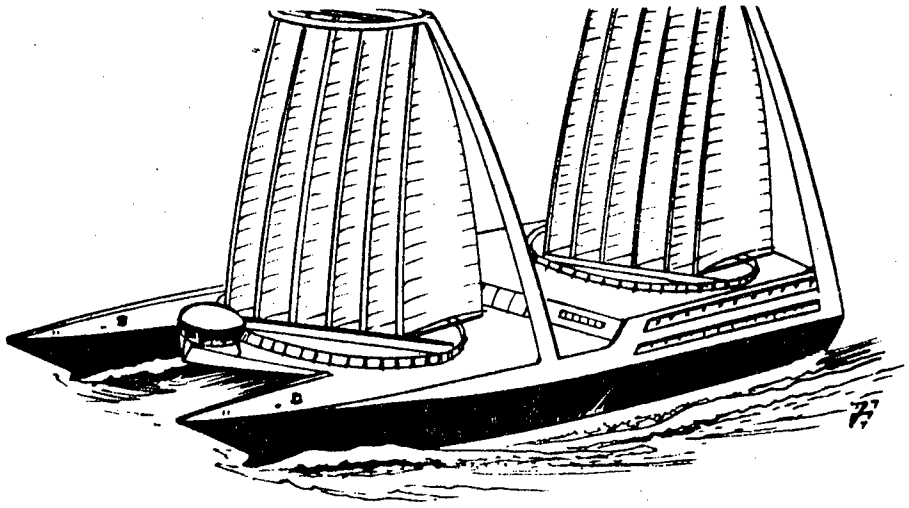
/F. Mak-Lir's/ sailing catamaran



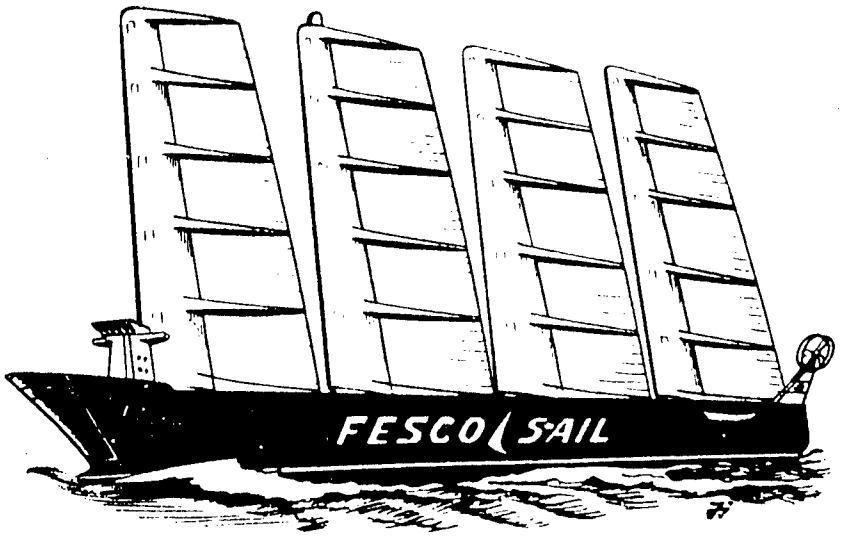
Sailing ferry for La Manche by /E. Leruzh/



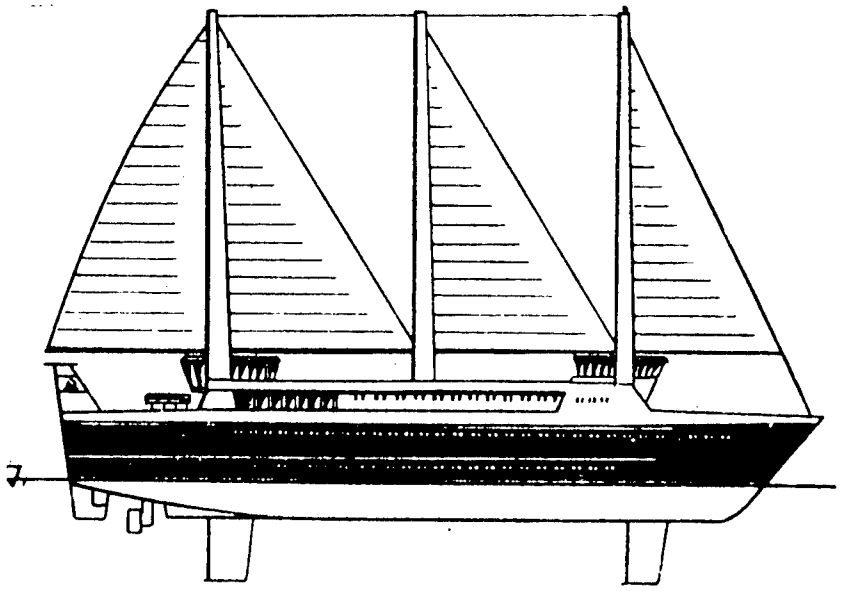
/F. Muson-Frankhauser's/ floating factories



Sailing ship with semirigid sail lattices




Cargo ship with semirigid wings for the Pacific Ocean



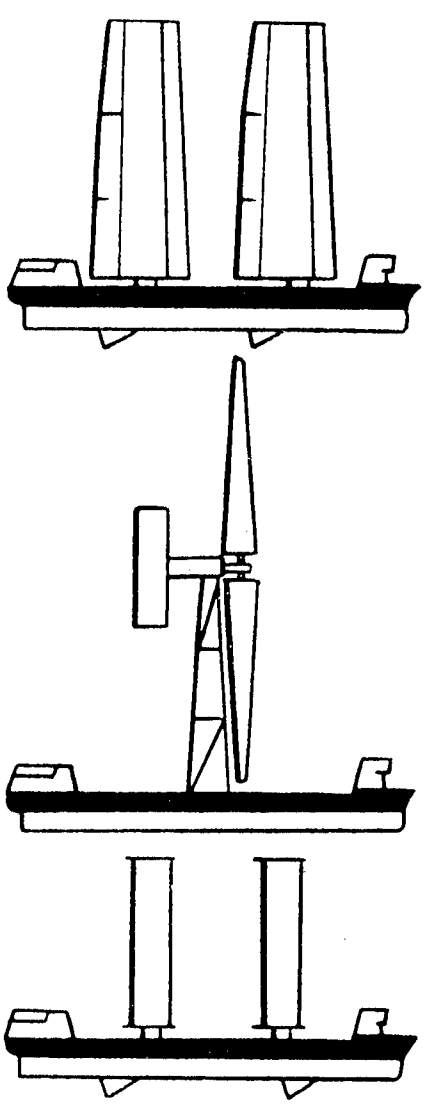
Sailing passenger catamaran

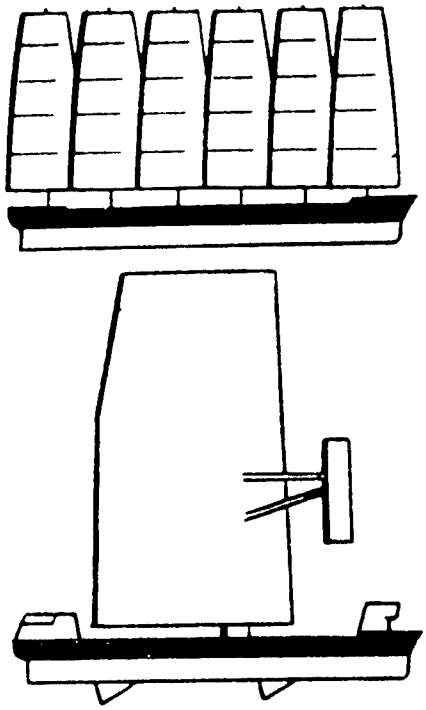
One of the most well-founded designs for a sailing ship is /V. Prols'/ project, "Dinashif," worked out together with scientists of the Institute of Shipbuilding of Hamburg University. It is a modern sailing ship with a highly efficient rig, far exceeding the other types in its degree of mechanization and automation. In the proposed version the advantages of the square rig of "Dinarig" are fully used, allowing use of any of the modern methods of loading and unloading. Upon the solution of the engineering problems, the ship will be more efficient than a modern motorship on certain shipping lines. In the United States and in Denmark firms were created for the promotion of such ships or of the "Dinarig." Scientists of the South Hampton University and the Sanderland and Liverpool Polytechnical Institutes have been occupied with a study of the project. On instructions from the Department of Commerce and the United States Maritime Administration, scientists from the University of Michigan made computer studies of "Dinashif" to determine the possibility of its construction for the American fleet. The studies showed that with a deadweight of about 45,000 tons, on certain shipping lines mainly in the Pacific Ocean basin, a sailing ship with a crew of 24 men will be able to compete strongly with a motorship, even when taking into account the fact that 15 percent of the time the ship will be propelled by the engines. The average speed will be a modest 12 knots, and the greatest speed may be 21-22 knots (with a force 9 to 10 wind abaft the beam).

Pliant sails, with their many advantages, do not provide the desired closeness to the wind when going windward. Therefore investigators continue to call for rigid sails, even those with a symmetrical cross section shape with which a ship may go closer to the wind with greater speed. This is characteristic especially for an isolated standing wing. Considered even more expedient is a two wing arrangement in which each wing by means of trailing-edge flaps can take on almost any necessary shape both chordwise and heightwise, depending on the tack and the wind velocity. Along with certain advantages, there are here also large disadvantages: because of the great height of a single wing it is impossible to use many ports; the necessity of the ship having an increased beam to provide stability; the great weight of the wing, which exceeds by 2.5 times the weight of "Dinarig"; efficiency only at small angles of attack and great speeds; and the complexity of control. The last, despite the possibility of the self trimming of the wing, is caused by large inertia forces and is especially notable in variable winds. All this, for the present, does not give much hope for the construction of cargo ships with such sails.

Designers place some hope on the wind-driven propeller. An air screw of 166 meter diameter rotating at 3-10 revolutions per minute will transmit the energy of the wind to the propeller through some kind of a transmission. It is regrettable that losses of 20 percent in transmission and 25 percent in the air screw substantially reduce the value of this propulsor. Furthermore, recent investigations have shown that a ship with a wind driven propeller, even theoretically, cannot power against the wind and is significantly inferior in efficiency to other forms of sail rigs.

Fletner rotors which make use of the Magnus effect (wherein a rotor revolving in an inflow of air develops a side force which is used for propulsion) have even greater deficiencies. Among them is the impossibility of being reefed, not withstanding the fact that their area projected on the center-line plane is small (15-25 percent) in comparison with conventional sails. At the same time, with the wind astern, this area is insufficient. Yawing of ships with such propulsors may lead to instability. In changing tacks it is necessary to reverse the direction of rotation of the rotors. The great frontal resistance, the necessity of increasing the rate of rotation with an increase in wind velocity, and finally, the energy consumption necessary for that same rotation--all this together with other deficiencies sharply limits the possibility of using such propulsors.





Comparison of the dimensions of wind propulsors of various types (from the top downwards): "Dinarig," single wing, two wing variant, wind driven propeller, Fletner rotors.

/D. Vellikam/ of South Hampton University made a comparative analysis of the enumerated types of rigs applied to a ship of 150-meters length and 21,000-ton displacement. As result, it was ascertained that the most practical design is "Dinashif."

Indeed, in comparison with the other types, "Dinarig" in an installation on a ship accommodating the placement of 4 to 6 masts has a low inherent weight; provides a low center of sail area; provides high efficiency in each mast unit (as a consequence of the reduction of drag and high aspect ratio); provides the possibility of reefing any sail and wide regulation of the sail area and the position of its center. The dimensions of the ship and its rig permit the use of all ports and their cargo handling gear.

A fuller, although somewhat utopian, use of the energy of the wind and the sea is proposed by the Englishman, A. Sims in the "Seres" project. The type of rig and its design is not discussed by the author except to say they would be efficient and that control of sails and deck work would be sufficiently mechanized. The power of the electric generating plant will be reduced to a minimum, namely that for lighting machinery and instruments. Batteries also serving as ballast are charged from a propeller driven generator (a hydraulic turbine) while under sail. Upon completion of a charge, the propeller blades are placed in a feathered position. When at anchor, energy is obtained from wind driven generators mounted on the masts. Turbogenerators situated in vertical tubes in the bow and stern and in horizontal tubes amidships moderate ship motions. Nothing is forgotten; and even on the hatch covers solar batteries are installed.

It is expedient to operate sailing ships only on long voyages; therefore "Seres" will be able to pass through both the Suez and the Panama canals. The dining table of the crew and passengers is replenished with products obtained from a hydroponic installation with regulated illumination and closed cycle use of waste waters. Thus, the ship is ecologically "pure."

The use of the wind not for propulsion, but for producing energy is also extremely promising. Thus there is great interest in the proposal of (F. Muson-Frankhauser) to use the high winds of the "screaming" and "howling" fiftieth latitudes of the Southern Hemisphere. Gigantic sails, partially supported in air by "pockets" of hydrogen, tow a water turbine. The energy produced is used in the electrolysis of water to obtain hydrogen and--later on--manufactured goods or semifinished products. The products are transferred to shore by auxiliary ships operating from the nearest continental ports.

Such are the basic directions of development of the sailing ship of the future. For Soviet sailing ships it appears that the most promising region is the Far East. Cargo ships can be used on voyages to the west coast of the Americas and to Australia, and smaller ships in the Black and Azov Seas. The most suitable rigs are "Dinarig" or semirigid wings. The latter have a contoured mast amounting to one quarter to one-fifth

of the area of the wing, and the remaining parts are pliant rectangular sails stretched along horizontal plates. Such a system is significantly lighter; it permits changing the sail area and its center at will, and it goes closer to the wind than the "Dinarig" system. The sailing ship will be able to transport ore, coal, oil, cellulose, containers and so on.

But the sailing cruise ship is of greatest interest for the present. Now, no one doubts the profitability of a small sailing passenger ship. Well-known is the schooner "Hans Christian Andersen" built especially for this service. Voyages under sail in the health resort field can last from 2-3 hours to 1-2 weeks. Of course, the ships should be different. Tourists will scarcely be attracted to a superautomated sailing machine. But at the same time, a ship with traditional rigging will more quickly scare the tourist away rather than attract him, especially the inexperienced. Therefore, for the more extended cruises of 1-2 weeks, a catamaran designed for 120 to 160 passengers can be offered with a 60-meter waterline length, a 25-meter over all width, a 5-meter width of the individual hulls, a 3-meter draft and 900 tons displacement. The ship is provided with public rooms, a swimming pool and a sports deck. Passengers are given the opportunity of participating in deck work and control of the ship. The rig is fore and aft and preferably a staysail rig with a 1000-square-meter area which, with satisfactory efficiency, allows for mechanization.

For shorter cruises, smaller (30-40 meter long) catamaran ships would be used which provide high speed and small angles of heel. Such ships could be used, in the first place, in the Black and Azov Seas and in the Baltic.

Sailing ships are not a tribute to a vogue, but a necessity provoked by the economic and ecological situation, by concern about tomorrow, and in the end, about tomorrow's man. That is exactly why it is believed that sail will return to the ocean.



9136
CSO: 8144/0092

## LUMBER TRANSPORT DEFICIENCIES AIRED

Moscow IZVESTIYA in Russian 23 May 78 p 2

[Article: "For Lumber Shipments — A Green Light"]

[Text] An inspection performed by the People's Control Committee has shown that the RSFSR Ministry of the River Fleet systematically fails to fulfill the state plan for lumber shipments. The fleet's vessels have failed to deliver more than 2 million tons of lumber to consumers during the past two years alone. Last year plans were not fulfilled by the Volga Association and the West Siberian, Irtyshsk, Yeniseysk and certain other shipping lines. The hauling of lumber by direct, mixed rail-and-water transport is especially unsatisfactorily organized. The volume has dropped 2-fold in the past decade. Plans for transferring lumber from rail to water transport at ports of the Volga-Kama basin were only 25 percent fulfilled in 1977.

Major deficiencies in the fleet's operation and in the organization of loading and unloading work at ports and lumber transhipment bases and tardiness in hauling lumber by rail from second transhipment ports constitute the main reasons for failure to fulfill the transport plan. Unproductive downtime for vessels of the West Siberian Shipping Line at lumber loading and unloading points was 1.5-fold greater in 1977 than in 1970.

Vessels stand idle for considerable periods through the fault of enterprises of the USSR Ministry of the Timber and Wood Processing Industry. Many of them do not operate at night. Some lumber transhipment combines employ obsolete technology for the loading and unloading work and make unsatisfactory use of the work force and means of mechanization. Last year lumber rafting offices and transhipment combines of the All-Union "Tomlesprom" timber industry association paid more than 600,000 rubles in fines for excessive downtime of vessels.

The RSFSR Ministry of the River Fleet is not taking proper steps to see that the shipping lines fulfill their lumber hauling plans and use the transport equipment more efficiently.

A large quantity of lumber remains for a long time at transhipment ports before it is hauled out by rail. In 1977, for example, the North Caucasus Railroad fulfilled only 80 percent of the plan for providing the ports of Ust'-Donetsk and Rostov with empty cars.

Many batches of lumber, including pit props, remained at the ports for 6 to 8 months.

In order to accelerate delivery and to reduce the amount of labor involved in transfer operations the RSFSR Ministry of the Building Materials Industry and Ministry of the River Fleet and the USSR Ministry of the Timber and Wood Processing Industry in 1976 required that enterprises under their jurisdiction organize the shipment of logs in bundles. They are still not being bundled for shipment, however.

The People's Control Committee directed the attention of Deputy RSFSR Minister of the River Fleet, Comrade Bagrov, Deputy USSR Minister of the Timber and Wood Processing Industry, Comrade Kanevskiy and Deputy USSR Minister of Railways, Comrade Kovarev to the systematic nonfulfillment of lumber shipment plans by direct water and direct, mixed water-and-rail transport, to the inefficient use of transport equipment and the late delivery of lumber to the recipients. It was recommended that these ministries eliminate the deficiencies revealed in the inspection and take every possible step to see that plans are fulfilled and that the transportation of lumber by the fleet's vessels is increased.

11499
CSO: 1823

## DEVELOPMENTS IN UKRAINIAN WATER TRANSPORT OUTLINED

Kiev PRAVDA UKRAINY in Russian 2 Jul 78 p 1

[Article: "The Republic's Blue Routes"]

[Text] Ships set out on distant water routes from the wharfs each day. They proudly bear the bright-red flag of our homeland over the oceans, seas and rivers. One-third of the shipments performed by the USSR Ministry of the Maritime Fleet are accomplished by shipping lines located in the Soviet Ukraine. Vessels of the "Yuzhflot" association annually deliver 20 million tons of cargo for the national economy. Around 25 million passengers are hauled by vessels of the Main Directorate of the River Fleet Under the Ukrainian SSR Council of Ministers.

This five-year period we have set out on a course of further mechanizing loading and unloading operations and improving technological processes in maritime and river transport. The Il'ichevsk, Zhdanov, Ismail, Zaporozh'ye and other ports are being reconstructed and expanded for this purpose.

The experience of seamen, railroad workers, motor vehicle operators and rivermen of the Leningrad transport system, whose initiative was approved by the CPSU Central Committee, has been widely disseminated among collectives of the republic's maritime and river fleets. Progressive methods of organizing shipments are being successfully adopted at the ports of Odessa, Il'ichevsk, Berdyansk and Kiev.

Socialist competition for early fulfillment of assignments for the third year of the five-year plan is expanding each day. Outstanding successes have been achieved in the shock watch by the crews of the motor ships "Krasnodon," "Dnepropetrovsk," "Irkutsk" and "Tallin," which completed the fulfillment of their annual plans on the eve of the holiday, a month ahead of schedule.

This summer many passenger vessels are being converted into floating rest and recreation centers. The comfortable liner "Kareliya" has left for its first trip on the Black Sea. During the season vessels of the "rest flotilla,"

which includes such modern motor ships as the "Ivan Franko," "Maksim Gor'kiy," "Belorussiya" and others will perform more than 100 cruises on the Black and Mediterranean seas and the Atlantic and Indian oceans. More than 750,000 people will spend their vacations on board these vessels.

Workers of the maritime and river fleets are persistently struggling to make their work more efficient. They are striving to make the homeland happy with new successes and to perform the tasks assigned them by the party with honor.

Happy holiday, dear comrades!

11499
CSO: 1823

TRANSPORTATION

## SHORTAGE OF RAILROAD CARS SUITABLE FOR HAULING GRAIN NOTED

Moscow GUDOK in Russian 26 Aug 78 p 2

[Article by Yu. Borin in the column "Newspaper Satirist Goes on the Trail": "Gates Leak Too"]

[Text] I would like to begin with a thought about the beautiful, such as about the stirring cornfield as it has been magnificantly celebrated by poets, prose-writers and cinematographers, which, viewed overall, promises a bountiful harvest.

But no, we will not glorify the cornfield. We will praise the mowed field. And although it has an unsightly appearance, although it bristles with a reddish stubble, although there is not an ear in it, in that very thing lies its peculiar charm. The harvest has been gathered in. One would not be excited by such as that. All is behind, the labor, the sweat and the sleepless nights.

Then one longs to soar upward in the skies like a lark and sing a joyful song, surveying the earth from the height of the bird's flight.

However, uplifted to that height, you suddenly observe a certain detail that manifestly spoils the impression of the picture of a completed harvest. You notice that one strip of earth has not been reaped and, as the classic has truly depicted, it inspires a melancholy mood.

One must descend from the sky and begin clearing up the matter. What is this strip? Where did it come from? When did it happen?

It came about through chinks in the railroad cars. The cars have been moving; the grain has been running out. And so a strip of spilled grain has appeared.

I have noticed these deposits of the recently gathered harvest on the tracks of the marshalling yard at Likhaya station. The dark yellow strip stretched along the rails and was lost in the hazy distance.

People walked by rather indifferently, not glancing at the spilled grain.

"Don't you even see it?" I asked a passing railroad worker angrily.

"I see it," he answered calmly. "But what can be done about it when they give us cars with holes in them?"

"But surely they are repaired at the preparation terminals!" I exclaimed. But the railroad worker just flapped his hand.

The director of the shipping division of the Likhovskaya branch Valentin Ivanovich Ul'yanov gave me official information. Only 70 percent of the cars passing through the preparation terminal can be used for grain. The rest are really suited for shipping boxes.

"And how many of the 70 percent remaining have chinks?"

This difficult question no one could answer. I decided to follow the trail. Perhaps it would lead to a clue.

The trail of the grain led me to the Glubokinskiy elevator where they had just loaded the harvest in covered cars.

"Why look at the cars?" the elevator workers started fussing. "It would be better to look at the record presenting the empties. Everything is written there."

And truly, everything was written in the record. Opposite each car number stood the words: "Suitable for shipping grain".

"How can that be?" I wondered. "What about the grain deposits?"

"Look here," said elevator director Victor Denisovich Demchenko. "Generally we are given abominable cars. That's the point. But we ourselves repair them in a mutual aid arrangement. We repair every second car. After that they are fit to use. Why would we come into conflict with the railroad workers?"

Coming into conflict with the railroad workers is really nothing to the director, especially since there are not enough cars. And those that there are must be put into fit condition. Rolling stock which has already undergone repair and cleaning at the preparation terminal for the cars must be repaired.

So it is turning out that even the double repair does not always help. Why else is there a trail of grain on the embankment?

At the Millerovo station where the aforementioned trail led me, I watched as the elevator workers diligently installed grain gates on the cars.

"Pardon me," I said in amazement. "But there are self-sealing doors on these cars. Why are they still blocking the way of the gates?"

They looked at me as at a man who is moon-struck.

"Can't you even see?"

I looked and saw. The doors were bent, broken and deformed. They were just thought to be self-sealing. As a matter of fact, the grain was flowing through them freely.

"The gates are the only thing that saves us." said the Millerovskoy elevator workers.

Well, now surely the grain trail has come to an end, I thought. A grain gate would be a reliable safeguard against leakage. Grain gates must be installed and not one kernel will be lost.

But what is this? A barely noticeable dark yellow trail extended on further. It went across the country to the North to where the trainloads of grain were moving. Is it possible the gates did not help either?

In the Georgiu-Dezh river port where the grain was transferred from barge to rails stood a recently arrived car with grain gates.

"Do you want to take a look?" asked the deputy director in charge of loading operations for the Georgiu-Dezh station Anatoliy Aleksandrovich Reznichenko.

The gates had a pitiful appearance. They were dilapidated, completely broken down and not very solid. But how could they be solid when they had already toured the roads of the country more than once, when these wooden gates had been used repeatedly and not very painstakingly?

Meanwhile, they are making very few new gates. Three years ago, they decided that cars with self-sealing doors were managing the transporting of grain quite well. At the time, this decision was explained fully by a real savings on lumber. At the time too, the harvest was not particularly high and so they managed.

But then, to the joy of all, a large grain crop appeared. And the economy turned into an actual extravagence. A thin stream of grain began to leak from the non-hermetically-sealed self-sealing and solid doors of the cars.

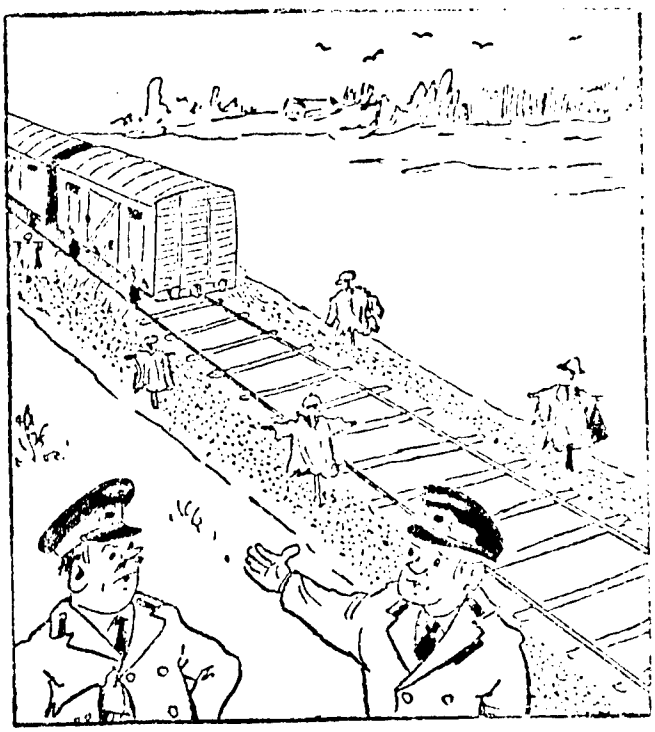
Where was it coming out? They found it on several railroads. They began to make so-called sealing strips. Not much wood is needed in them and they are relatively simple to make.

But, alas! After traveling 500 kilometers through the atations and elevators of the Southeastern Main Line, I have yet to see these strips. Maybe I just haven't been lucky. But could it be that the local railroad workers are

just not very concerned about the little trickle of grain?

Unwittingly, I recalled one of them who had passed by the tracks in the Likhaya station.

"What can be done when they give us cars with holes in them?" he had said and walked on without stopping.



"We too took steps for preserving the grain."

8945
CSO: 1823

TRANSPORTATION

DELAYS IN UNLOADING GRAIN HARVEST DISCUSSED

Moscow GUDOK in Russian 29 Aug 78 p 1

[Article by V. Barabashov: "Congestion in Unloading"]

[Text] So the grain arrived at the Sverdlovsk Railroad. This year's harvest was large, but arduous. "The first signs" came at first in the form of three, five or 20 cars filled with grain. They are now arriving by the dozens and the hundreds. As of now, 23 August, 400 cars with grain stand on the rail line, but they are getting ready to unload only 160 of them ... So traffic congestion has appeared.

At a railway selector conference, which was held by the administration of the Sverdlovsk RR with an invitation extended to representatives of grain-receiving organizations, the over-all pictured emerged: of 108 cars, only 28 are being unloaded on the Perm' Branch, while on the Chusovoy Branch they have no more than seven cars available, but these are just standing there ... The situation is extremely bad in Tyumen'. "In practical terms, the branch is not ready to unload grain." This is how the state of affairs was characterized by Ye. Osipov, deputy director of the railroad, who presided over the conference. Out of 182 cars, almost all of them with the full time period allotted for layover up, only 51 are being unloaded there. As in the past year, only a few cars are being unloaded at the Tyumen', Yalutorovsk, Golyshmanovo and Ishim stations, although they are receiving dozens of them. Work is basically being handled during the daytime. During the night of 22 August, for instance, they unloaded a total of four grain cars.

The situation is also no better on the Sverdlovsk Branch, particularly at the Bazhenovo, Aramil', Sverdlovsk Freight, Kamensk-Ural'skiy and Kol'stovo stations. What's the matter?


They wrote and took part in a
conference,
Knowing neither cares nor anxiety,
But suddenly such a commotion
occurred,
For they had not expected an
important guest here!

Key:

1. Grain of the new harvest
2. Pledges
3. The report is ready.

(Drawn by V. Fomichev, almost following the picture by I. Ye. Repin; verse by A. Stavratskiy)

The causes are diverse. In Perm', for instance, all the storage capacities were filled up in a short period of time, so it turned out that there was nowhere to unload the cars. In addition, there's a shortage of people here for unloading work. Similar trouble is also encountered at the Mendeleyevo, Bakharevka, Berezniki and Chusovskaya stations. "In keeping with measures outlined earlier," says T. Shneyder, director of the branch, "we have inspected the entire weighing-machines system, we have put the enterprise sidings in working order, have created a grain group on our branch and have set up round-the-clock duty ..." In general, measures have been taken, but nothing is being unloaded.

Another problem in Sverdlovsk is this: in practical terms, the storage capacities are free here and are ready to receive

a huge quantity of grain, but it is still not here, while that which has arrived is not being unloaded as it should be. By a decision of the oblast soviet executive committee, 660 men, which is no small number, were allocated to the Sverdlovsk grain procurement workers for assistance. Prior to the beginning of the mass shipment of grain, the People's Control Committee inspected the equipment of the combines and found it all in excellent condition. But ... there is not the proper interaction between the railway and procurement workers. If the railway workers do not get the cars in on time, then the employees of the enterprise receiving the grain are late. That's the way the situation is at this time at the Kol'tsovo station; unfortunately, the collectives at the Bazhenovo station and the local grain-receiving center also operate this way. Things are also in bad shape with grain unloading in Nizhniy Tagil. In order to unload cars carrying grain in a smooth-flowing manner, they must be shunted down to the front lines no less than four times every 24 hours; in practice, though, they are brought in only one-half that frequently.

The situation is the most severe of all on the Tyumen' Branch. In addition to the figures which we have already cited, one must note that, as last year, there is no switching equipment at such important grain-receiving stations as Yalutorovsk and Ishim. Railway workers bring down and remove the cars only once every 24 hours. There is also a shortage of storage capacities. A new grain-receiving center is just about to be opened; however, this will hardly fully relieve the acuteness of the situation. Layovers of cars at elevators are increasing. At the Golyshmanovo station, where the norm is six hours, cars stand for unloading 14 to 15 hours, while in Tyumen' they stand for 10 to 16 hours. Round-the-clock work has not been organized among the procurement workers. Meanwhile, at the selector conference, workers from Tyumen''s associated industries engaged in arguments and mutual reproaches ...

And, in such an anxious situation, the conversation at the selector conference really proceeded in much too quiet a tone.

Instead of strictly asking for and demanding fulfillment of the measures that had been planned, Ye. Osipov, deputy director of the railroad, apparently allowed himself to be satisfied with listening to the reports from the branches on the difficulties and problems. "At the end of the month we shall demand responsibility," he promised. It is, however, possible, comrade directors of the Sverdlovsk AR, to be overdue with such a demand. After another week or so, large grain shipments will gush forth onto the main line in formidable numbers and then it will be impossible to linger.



8663
CSO: 1823

## 75TH BIRTHDAY OF SHIP CAPTAIN CELEBRATED

Moscow VODNYY TRANSPORT in Russian 26 Sept 78 p 4

[Report by B. Georgiyev: "Always With the Sea"]

[Text] The 75th birthday of well-known Captain I.A. Man was observed with heartfelt warmth by representatives of Moscow's naval and scientific community at the exhibit "The USSR Navy." He has devoted more than a half century of life to the development of the merchant marine and polar navigation and to a large group of mariners. The holder of five of our nation's orders participated in the mastering of the Northern Sea Route and was among the first Soviet people to set foot on the shores of the Antarctic.

At a meeting honoring him congratulations were expressed by Hero of Socialist Labor T.B. Guzhenko, minister of the maritime fleet. Speaking at the meeting were V.I. Tikhonon, first deputy minister of the maritime fleet; administration chiefs E.S. Veresotskiy, Yu.N. Yevfarestov and N.M. Nemchinov; Hero of the Soviet Union Ye.K. Fedorov, academician; and veterans of the navy and of naval and polar exploration. Captain Man received numerous letters and greetings, including a telegram from the Captains' Club of the Far East Shipping Line signed by Hero of Socialist Labor A.I. Shchetinina.

One of the oldest captains and a participant in the Great Patriotic War, I.A. Man continues to work and engage in extensive public activities. He imparts his vast know-how to the youth and tirelessly popularizes the glorious history of the Soviet fleet and naval and geographic knowledge.

11499
CSO: 1823

## BRIEFS

NEW PROFILE GRINDING MACHINE—The Central Institute of Aircraft Engines has built an experimental model of a profile grinding machine. It can machine a surface with a complex configuration with great precision. The device is attached directly to a grinder. Its simple design makes it easy to operate. Adoption of the unit for use will result in a hypothetical, annual economic saving of 24,000 rubles. [Text] [Moscow MOSKOVSKAYA PRAVDA in Russian 20 Jun 78 p 1] 11499

NEW AIR ROUTES—Tallin—Aeroflot has opened up new routes connecting Tallin with the capital of Uzbekistan and with Novosibirsk. These are the longest routes ever serviced by crews of the Estonian Civil Aviation Administration. Each of them is nearly 4,000 km long. Comfortable "TU-134" planes deliver passengers from Tallin to Tashkent (with landings in Kuybyshev and Chelyabinsk) in 6 hours. The ride to Novosibirsk takes approximately the same amount of time. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Jun 78 p 4] 11499

FAR EAST WATER TRANSPORT—Khabarovsk—Almost 20 million tons of various types of cargo will be delivered here by rivermen of the Amur basin to cities and villages along the Amur, to the Sea of Okhotsk and to the Far North. Water routes today are of prime importance with respect to developing remote areas of the Far East. A total of 600,000 tons of freight will have to be delivered to builders of the Baykal-Amur Trunk Line, considerably more than last year. For the first time in the history of Amur shipping a large amount of freight will travel over the Bureya to builders of the Bureyskaya GES. The banner of socialist competition has been raised among the Amur rivermen. Hundreds of ship crews have given their word to fulfill their commitments by the first anniversary of the Constitution of the USSR. The crews of 16 vessels at the ports of Blagoveshchensk and Khabarovsk have decided to haul a quantity of freight equivalent to that hauled by 20 similar vessels. The Far East water routes are far from smooth. The Amur-batyushka and its sister rivers, the Zeya and Bureya, abound in treacherous shallows and dangerous shoals. This is where the river workers are occupied. They are dredging the channel, making passages through the shoals, placing buoys at dangerous sections and repairing many leading marks. The taming of the Zeyskoye Sea, where two shipping routes were recently opened, continues. [Text] [Moscow IZVESTIYA in Russian 22 Jun 78 p 1] 11499

NEW LIGHTER SHOP—Kiliya, Odesskaya Oblast—Construction of the nation's first lighter production shop has been completed. This shop was created at a local ship repair plant and has been outfitted with the latest equipment. Dozens of lighters with a hauling capacity of 1,100 tons each will be built there each year. These vessels will make up the lighter transport fleet of the Dunay Shipping Line. [Text] [Moscow VODNYY TRANSPORT in Russian 5 Oct 78 p 4] 11499

NEW MOUNTAIN ROAD—A new road has been entered on the map of Georgia. The first vehicles have traveled from the Alazan' valley to Omalo, the center of Tushetiya, which is located in the high mountains, more than 2,000 meters above sea level. Tunnelers from the "Tbiltonnel'stroy" administration created the route 1½ months ahead of the deadline specified in their socialist commitments, commemorating the anniversary of the Constitution of the USSR with this labor victory. The builders had to move more than 700,000 cubic meters of rock in order to build the complex, 32-km highway, which is 3,000 meters above sea level in places, through the mountains and gorges. [Text] [Moscow IZVESTIYA in Russian 4 Oct 78 p 1] 11499

BAM TUNNEL—The concreting of the first tunnel on the Baykal-Amur Trunk Line, the Nagorninskiy Tunnel, which was built through the Stanovoy range on the Tynda-Berkakit route. The collective of tunneling detachment No. 16, which is headed by experienced Leningrad subway builder N. Omel'yanenko, successfully accomplished the difficult technological tasks under difficult geological and climatic conditions within a short period of time. All of the jobs were performed ahead of schedule. The builders are now beginning the waterproofing work and installation of the communications systems. The laying of the rails will begin within the next few days. It is planned to run the first heavy train beneath the ridge by 13 August, Builder's Day. Trains now travel to Berkakit in a roundabout way. The line's traffic capacity will increase considerably when the tunnel is placed into operation. [Text] [Moscow IZVESTIYA in Russian 30 Jul 78 p 1] 11499

ANCHOR STOWAGE DEVICE—Gor'kiy—How can an anchor chain be stowed more compactly? This is of considerable importance on a vessel, on which each sq cm counts. The Gor'kiy Central Design Office of the RSFSR Ministry of the River Fleet has developed a new device for stowing anchor chains. The effort was very successful. The State Committee of the USSR for Inventions and Discoveries examined the technical design for innovation and acknowledged it as an invention. It has been entered in the State Inventions Register, and an inventor's certificate was issued to its creators, V. Zayakin, Yu. Petlitskiy and S. Pozdnikin, coworkers at the office. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Aug 78 p 2] 11499

GIANT FLATCARS—Voroshilovgrad—Superlarge and superheavy freight will be delivered by railroad cars, the production of which has been mastered at the Diesel Locomotive Plant imeni Oktyabr'skaya Revolyutsiya. The giant flatcar is more than 70 meters long. It can carry 400 tons. The steel giant, which has been turned over to the client, the USSR Ministry of Railways, will haul equipment for the electric power plants under construction in Siberia. Installation of an even larger flatcar, which can carry 500 tons, is being completed at the plant. [Text] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 18 Jun 78 p 1] 11499

BRIDGE OVER OKA—A third motor vehicle bridge is being built over the Oka in Gor'kiy. It will connect two of the city's large industrial areas, Avtozavodskoy and Priokskiy. The bridge is being built by the collective of bridge building detachment No. 1 of "Glavmostostroy." [Text] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 18 Jun 78 p 1] 11499

VLADIVOSTOK-AIRPORT ROAD--The Vladivostok-Airport Road is presently undergoing reconstruction. [Vladivostok Domestic Service in Russian 0215 GMT 12 Oct 78]

TRACK LAID--A brigade of construction and installation train No 574 has laid the track to the 1646th Kilometer Mark of the route under construction. The brigade has pledged by the eve of the Komsomol Anniversary to lay the track to the (Umbirsk) siding after which they will have 33 km more work to be done before reaching the Larba station. [Blagoveshchensk Domestic Service in Russian 1000 GMT 16 Oct 78]

RAILWAY BED, MOTOR ROAD RIPRAPPED--A brigade of mechanized column No 153 of the Bamstroymekhanizatsiya trust has prefulfilled its five-year plan by processing 1,300 cubic meters of soil in riprapping the railway bed on the Tynda-Berkakit line and the Ust-Nyukzha-Olekma motor road. This is the second brigade at the central section of the railway which prefulfilled its five-year plan. [Blagoveshchensk Domestic Service in Russian 1000 GMT 16 Oct 78]

NEW OIL BARGE--Finishing work is underway on an oil barge with a deadweight of 500 tons at the Sovetskaya Gavan plant of the Ministry of the Maritime Fleet. This is the first vessel of this type being built in the Far East. [Khabarovsk Domestic Service in Russian 0930 GMT 17 Oct 78]

CSO: 1823 END